

CRPL-F189 PART A

FOR OFFICIAL USE

PART A  
IONOSPHERIC DATA

ISSUED  
MAY 1960

U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
CENTRAL RADIO PROPAGATION LABORATORY  
BOULDER, COLORADO



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## IONOSPHERIC DATA

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## SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

In the Second Report of the Special Committee on World-Wide Ionospheric Soundings of the URSI/AGI Committee, May 1957, a new descriptive letter was introduced:

M Measurement questionable because the ordinary and extraordinary components are not distinguishable.

There was an expansion in meaning of the following:

- Z (1) (qualifying letter) Measurement deduced from the third magnetoionic component.  
(2) (descriptive letter) Third magnetoionic component present.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

### a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N or R are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic; the descriptive symbol D, only when it replaces a frequency characteristic.

Values missing for any other reason are omitted from the median count.

c. For MUf factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

B for fEs is counted on the low side when there is a numerical value of a higher layer characteristic; otherwise it is omitted from the median count.

S for fEs is counted on the low side at night; during the day it is omitted from the median count (beginning with data for November 1957).

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with CRPL-F188, Part A, issued April 1960, the count is given for foF2 in the tables of medians. It is regretted that space limitations prevent including detailed counts for other characteristics.

To indicate further in a general manner the relative reliability of the data, for the F2 layer,  $h^*F$  or foEs, if the count is from five to nine, or, for all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is enclosed in parentheses. Medians are computed for less than five values for foF2 only.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

There is no indication on the graphs of the relative reliability of the observed data; it is necessary to consult the tables for such information.

The tables may contain median values of either f<sub>0</sub>E's or fE's. The graph of median Es corresponds to the table. Percentage curves of fE's are estimated from values of f<sub>0</sub>E's when necessary.

The latest available information follows concerning the smoothed observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1959.

### Smoothed Observed Sunspot Number

## WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

República Argentina, Ministerio de Marina:  
Buenos Aires, Argentina  
Tucuman, Argentina

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:  
Brisbane, Australia

Meteorological Service of the Belgian Congo and Ruanda-Urundi:  
Bunia, Belgian Congo  
Elisabethville, Belgian Congo  
Leopoldville, Belgian Congo

Belgian Royal Meteorological Institute:  
Lwiro (Central African Institute for Scientific Research)

Electronics Directorate of the Brazilian Navy:  
Natal, Brazil

British Department of Scientific and Industrial Research, Radio Research Board:  
Ibadan, Nigeria (University College of Ibadan)  
Port Lockroy  
Singapore, British Malaya

Universidad de Concepcion:  
Concepcion, Chile

Radio Wave Research Laboratories, National Taiwan University,  
Taipeh, Formosa, China:  
Formosa, China

Instituto Geofisico de Los Andes Colombianos:  
Bogota, Colombia

Ionospheric Institute, Breisach, Germany:  
Freiburg, Germany

Central Institute of Meteorology, Budapest, Hungary:  
Budapest, Hungary

Icelandic Post and Telegraph Administration:  
Reykjavik, Iceland

Geophysical and Geodetic Institute, Genoa, Italy:  
Monte Capellino, Italy

Manila Observatory:  
Baguio, P. I.

Rhodes University, Union of South Africa:  
Grahamstown, Union of South Africa

Research Institute of National Defence, Stockholm, Sweden:  
Upsala, Sweden

Royal Board of Swedish Telegraphs, Radio Department, Stockholm, Sweden:  
Lulea, Sweden

United States Army Signal Corps:  
Adak, Alaska  
Cape Canaveral, Florida  
Ft. Monmouth, New Jersey  
Grand Bahama I.  
Okinawa I.  
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):  
Anchorage, Alaska  
Boulder, Colorado  
Byrd Station, Antarctica  
Fairbanks (College), Alaska (Geophysical Institute of the  
University of Alaska)  
Maui, Hawaii  
Point Barrow, Alaska  
Washington, D. C.

## TABULATIONS OF ELECTRON DENSITY DATA

Reduction of hourly ionospheric vertical soundings to electron density profiles has become a part of the systematic ionospheric data program of the Central Radio Propagation Laboratory, National Bureau of Standards. Scalings of ionograms for this purpose are being provided by ionosphere stations operated by CRPL and the U. S. Army Signal Corps. For the present, the hourly profile data from one CRPL station, Puerto Rico, are appearing in the monthly CRPL-F Reports, Part A. These data are in place of the standard ionogram reductions formerly provided by this Station. The very considerable task of scaling the ionograms for this purpose is being undertaken by T. R. Gilliland, Engineer in Charge, Puerto Rico Ionosphere Sounding Station; the computations are performed at the NBS Boulder Laboratories by a group headed by J. W. Wright. Basic conversion of virtual to true heights uses the well-known matrix method developed by K. G. Budden of the Cavendish Laboratory, Cambridge University, programmed for an IBM 704 computer.

The tabulations provide the following basic electron density profile data for each hour of each day of the month:

<u>Quantity</u>	<u>Units</u>	<u>Remarks</u>
Electron Density (N)	$\times 10^3 = \text{electrons/cm}^3$	Body of table; given at each 10 km of height.
NMAX	$\times 10^3 = \text{electrons/cm}^3$	Always the highest value of N at each hour. To maintain this rule, the electron density at the next 10 km increment above HMAX is always given as exactly equal to NMAX (unless HMAX coincides with a 10 km level).
QUALIFICATION	(Alphabetic)	A standard scaling letter qualifying the observation when necessary.
HMIN	Kilometers	The height of zero or very low electron density, obtained by linear extrapolation of the electron density vs. height curve.
SCAT	Kilometers	One half of the half-thickness of the parabola best fitting the upper portion of the F region profile. Approximates the scale height near the level HMAX.
HMAX	Kilometers	The height of maximum electron density, determined by fitting a parabola to the upper portion of the profile.
SHMAX	$\times 10^{10} = \text{electrons/cm}^2$ column.	Obtained by integration of the profile between the limits HMIN and HMAX.

Tabulations of the average electron densities each hour, at each 10 km level, for the quiet ionosphere, are also given. These averages include the profiles obtained when the magnetic character figure  $K_p$  is less than 4+. The number of profiles entering the average for each hour is given by CNT. The other parameters of the layer, HMIN, SCAT, HMAX, SHMAX, are averaged in a similar way.

Before the averaging process, the individual profiles are extrapolated above HMAX by a Chapman distribution of 100 km scale height. This assumed model seems to agree well with the few published measurements dealing with the topside profile of the F-region.\* Extrapolation is necessary in order to calculate homogeneous averages near HMAX and the average profiles are, in fact, given up to 950 km. Also given are the average estimated integrated electron densities to infinity, SHINF (same units as SHMAX); this is an approximation to the total electron content in a column of the ionosphere.

\*See Wright, J.W. "A Model of the F-Region Above HMAX F2" J.Geophys.Res. V.65 pp 185-191.

## ELECTRON DENSITY

PUERTO RICO		60 W										1 JAN 1960		
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	A	
DUAL														
HMIN	239	213	193	177	276	206	193	203	111	110	110	111		
SCAT	47.5	42.2	45.7	53.5	52.8	54.1	63.5	46.9	45.5	40.0	40.4			
HMAX	336	296	294	318	394	319	334	303	285	278	279			
SHMAX	343	277	161	173	162	132	180	291	1026	1385	1561			
KM														
400							219							
390							218							
380							215							
370							207							
360							195							
350							180							
340	557						161		203					
330	555						138		203					
320	541			214	112	179		201						
310	513			213	87.3	178	196	469						
300	479	516	257	208	63.7	174	189	468						
290	427	513	256	199	45.6	166	179	459	1555					
280	362	498	250	186	16.2	156	167	439	1550	2161	2396			
270	271	467	238	170		143	152	411	1512	2137	2363			
260	161	426	222	151		127	134	369	1436	2047	2254			
250	71.4	362	198	131		106	114	310	1341	1889	2087			
240	12.4	262	164	110		83.8	92.9	240	1176	1669	1817			
230		143	125	90.2		61.9	73.9	157	941	1373	1469			
220		60.0	88.2	72.6		45.2	58.2	83.8	663	1004	1143			
210		57.9	58.2			16.1	44.7	44.7	432	716	834			
200		32.2	46.8				21.4		286	517	587			
190			32.2						195	389	440			
180				7.4					146	300	351			
170									115	244	286			
160									97.2	205	240			
150									91.0	173	198			
140									84.7	150	169			
130									78.4	137	154			
120									72.1	127	145			
110									40.2					

#### ELECTRON DENSITY

PUERTO RICO		60 W										1 JAN 1960	
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
QUAL	A	A	A	A	A	A	A						A
HMIN								189	188	189	195	210	F
SCAT								40.0	48.0	52.8	53.9	73.3	
HMAX								280	314	315	329	375	
SHMAX								594	432	368	247	275	
KM													
380													262
370													262
360													260
350													255
340													248
330													316
320													237
310													608
300													508
290													314
280													224
270													606
260													305
250													293
240													1084
230													567
220													479
210													275
200													175
190													1084
								527	452	251	157		
								1067	477	417	222	139	
								1014	417	368	188	120	
								930	355	310	154	99.7	
								807	286	240	121	77.5	
								653	213	164	91.5	56.5	
								493	143	112	66.3	40.2	
								286	94.3	74.6	47.3		
								112	60.0	47.6	19.9		
								12.4	12.4	7.3			

## ELECTRON DENSITY

## ELECTRON DENSITY

	PUERTO RICO		60 W		2 JAN 1960							
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL			A									F
HMIN	108	105	109	109	113	110	199	188	204	218	203	261
SCAT	59.6	63.0	58.1	61.7	61.7	54.1	55.0	47.9	52.9	50.9	34.5	81.9
HMAX	296	317	325	322	328	312	306	296	333	342	287	450
SMAX	122I	1565	1609	1554	1606	1501	1046	477	382	339	228	477
KM												
460												403
450												403
440												401
430												397
420												390
410												379
400												366
390												349
380												331
370												313
360												286
350												256
340												238
330		1640	1640	1669					516	469		
320		1460	1637	1640	1661	1786			515	462		221
310		1455	1613	1625	1633	1785	1500		508	446		189
300	1252	1433	1565	1589	1582	1762	1496	716	465	389		119
290	1250	1392	1491	1528	1505	1710	1469	714	430	347	477	87.3
280	1231	1331	1399	1452	1413	1619	1417	697	386	298	471	60.0
270	1195	1248	1275	1354	1299	1504	1341	663	332	240	446	40.2
260	1143	1155	1154	1225	1175	1366	1240	615	268	184		401
250	1070	1050	1004	1050	1029	1207	1113	556	203	127		331
240	979	934	845	885	858	1030	949	482	140	82.8		240
230	875	819	700	716	679	851	716	389	92.4	49.6		143
220	770	716	573	573	540	643	417	294	60.0	124.4	83.8	
210	657	627	485	456	425	477	143	175	3.8			43.6
200	552	548	417	373	342	351	12.4	105				
190	467	477	372	319	281	254		30.0				
180	401	417	330	269	237	194						
170	343	362	286	229	205	157						
160	295	310	232	187	176	131						
150	254	270	191	152	145	112						
140	217	236	170	141	127	98.5						
130	179	210	158	136	120	92.3						
120	168	190	151	131	113	86.8						

## ELECTRON DENSITY

PUERTO RICO		60 W										3 JAN 1960		
TIME		0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	
QUAL											A	A	A	A
HMIN	241	213	203	195	247	189	189	197	110	109				
SCAT	47.1	29.9	28.2	58.5	50.6	54.9	55.1	43.1	36.0	40.6				
HMAX	344	291	265	325	366	334	318	301	266	286				
SHMAX	339	242	162	189	171	207	189	265	629	1304				
KM														
370						235								
360						234								
350	540					229								
340	539					219	251							
330	529				229	203	251							
320	506				229	184	247	240						
310	471				225	162	238	239	432					
300	424	573			219	139	226	234	432					
290	362	573			207	112	210	225	425		2000			
280	286	552			194	86.0	189	211	404		1987			
270	198	501	432		177	62.8	165	195	375	1004	1918			
260	105	417	428	158	44.4	141	174	335	997	1796				
250	49.6	300	401	137	12.4	116	150	286	1601					
240		179	347	114		93.8	127	225	868	1318				
230	80.4	262	90.0			74.6	99.4	161	754	1024				
220		42.0	127	66.9		59.2	74.6	107	608	730				
210			51.9	48.1		46.4	54.1	62.9	466	508				
200				20.3		28.5	37.0	19.6	349	383				
190						1.7	1.8		262	301				
180									198	243				
170									157	198				
160									129	166				
150									110	143				
140									97.4	130				
130									91.9	122				
120									86.6	117				
110									12.4	83.8				

## ELECTRON DENSITY

## ELECTRON DENSITY

PUERTO RICO		60 W										4 JAN 1960		
TIME		0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	
OUAL	S													
HMIN	230	227	212	202	211	218	205	195	109	109	108	108		
SCAT	45.8	36.3	29.4	33.5	73.4	61.2	56.0	48.8	40.9	40.7	34.5	57.4		
HMAX	331	309	278	274	375	354	317	313	284	280	268	280		
SHMAX	364	289	237	121	191	174	137	255	744	1345	1309	1230		
KMH														
380														
370														
360														
350														
340	599													
330	599													
320	591													
310	568	582												
300	533	573												
290	481	543												
280	405	489	608	268	110	127	164	336	1047	2032			1380	
270	316	417	597	267	96.4	107	152	303	1020	2001	2193		1370	
260	219	319	552	256	82.1	85.7	137	257	960	1907	2164		1336	
250	112	198	477	233	68.2	66.4	118	204	875	1759	2045		1275	
240	54.3	91.2	335	198	55.8	51.0	94.5	154	761	1540	1828		1203	
230	31.0	179	143	44.4	36.3	70.0	112	631	1266	1538			1113	
220		60.0	80.8	23.3	6.4	49.0	76.7	500	937	1214	1004			
210			44.5				21.0	51.7	389	694	875			
200							21.7	31.0	508	621	754			
190								240	389	446	620			
180								190	310	354	488			
170									153	254	293	374		
160									125	213	250	300		
150									106	182	213	250		
140									95.1	157	182	215		
130									89.5	140	161	189		
120									83.8	131	150	168		
110									12.4	71.6	11.8	112		

## ELECTRON DENSITY

PUERTO RICO			60 W			4 JAN 1960						
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL	S	A	A	A	A	A	A	A	F	A		
HMIN	107	108	109	108	110	111	199	188	199	238	214	199
SCAT	54.8	57.8	71.5	62.0	47.2	58.0	44.8	49.2	56.0	41.6	44.0	54.5
HMAX	310	317	335	319	303	311	304	312	334	326	332	319
SHMAX	1381	1575	1997	1597	1227	1375	857	595	454	284	288	309
KM												
340			1786						582		432	
330			1783						581	516	431	
320	1446	1669	1765	1669		1555		814	572	513	424	417
310	1446	1663	1730	1660	1528	1555	1393	813	554	497	402	414
300	1434	1633	1677	1631	1526	1542	1391	802	526	464	370	404
290	1398	1579	1605	1580	1497	1506	1360	775	491	417	335	387
280	1341	1508	1521	1502	1431	1446	1284	729	446	362	291	363
270	1254	1430	1415	1408	1341	1355	1186	668	389	276	240	333
260	1143	1273	1292	1292	1216	1252	1061	593	325	161	192	293
250	1022	1204	1170	1143	1050	1131	895	516	258	176.6	143	247
240	891	885	1030	1004	888	983	696	434	185	21.7	95.1	198
230	768	754	875	848	736	822	477	349	121	60.0	134	
220	659	634	737	679	608	655	262	262	75.4		33.5	83.8
210	566	536	608	540	490	499	112	179	48.1			51.4
200	485	453	508	417	389	383	12.4	88.7	7.1			6.3
190	417	389	427	331	302	295			24.6			
180	357	335	362	271	235	229						
170	299	295	306	223	191	181						
160	244	262	262	189	138	149						
150	203	233	230	161	119	127						
140	182	187	205	146	110	111						
130	172	160	190	138	105	101						



## ELECTRON DENSITY

PUERTO RICO

60 W

7 JAN 1960

TIME 0000 0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100

QUAL	A	C	C	
HMIN	234	209	194	225
SCAT	47.8	32.3	28.9	79.2
HMAX	363	309	280	254
SHMAX	386	281	292	124
KM				

380	229
370	565
360	564
350	554
340	529
330	494
320	446
310	379 688
300	306 673
290	234 619 697
280	169 523 697
270	112 375 680
260	76.5 219 628 323 89.4 95.3
250	52.4 102 540 321 67.6 71.4
240	25.6 49.6 389 303 47.7 51.9 83.8
230	198 268 20.1 33.1 60.0
220	83.8 211 42.0 40.2
210	12.4 127 4.3
200	49.6
190	
180	
170	
160	
150	
140	
130	
120	
110	

## ELECTRON DENSITY

PUERTO RICO

60 W

7 JAN 1960

TIME 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300

QUAL	A	S
HMIN	108	110
SCAT	57.5	56.2 60.4 53.0
HMAX	317	316 324 330
SHMAX	2029	2072 1995 1980
KM		

390	229
380	229
370	227 234
360	223 231
350	216 225 280
340	208 217 278
330	200 206 273
320	188 194 262
310	176 179 246 477
300	161 161 226 472
290	135 140 201 456
280	112 118 174 429 1027 1533
270	93 1025 1468
260	73 1596 1484 2032 1611
250	64 1642 1446 1288 1812 1446
240	55 819 423 522 344 73.3
230	50 2000 2161 971 540 296
220	49 2193 1998 2140 2430 1922 1191 962 834 534 260
210	48 2186 1973 2080 2410 1922 1188 929 826 520 223
200	47 2147 1920 1975 2371 1901 1163 871 802 499 187
190	46 2050 1981 2072 1835 1837 2287 1843 1112 788 759 473 153
180	45 2080 1954 1730 1669 2174 1743 1038 679 702 437 122
170	44 2070 1811 1596 1484 2032 1611 937 555 624 394 97.2
160	43 2060 1446 1270 1077 1555 1240 679 276 396 291 55.6
150	42 2050 1403 1444 1270 1077 1555 1240 679 276 396 291 55.6
140	41 2040 1096 925 754 960 64.3 362 71.4 143 185 12.4
130	40 2030 1096 925 754 960 64.3 362 71.4 143 185 12.4
120	39 2020 917 783 620 679 710 208 21.2 64.7 7 133
110	38 2010 754 656 516 460 106 89.7
100	37 608 552 432 323 53.0 55.4
90	36 608 552 432 323 53.0 55.4
80	35 608 552 432 323 53.0 55.4
70	34 608 552 432 323 53.0 55.4
60	33 608 552 432 323 53.0 55.4
50	32 608 552 432 323 53.0 55.4
40	31 608 552 432 323 53.0 55.4
30	30 608 552 432 323 53.0 55.4
20	29 608 552 432 323 53.0 55.4
10	28 608 552 432 323 53.0 55.4
0	27 608 552 432 323 53.0 55.4

## ELECTRON DENSITY

PUERTO RICO

60 W

8 JAN 1960

TIME 0000 0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100

QUAL	A	C	C	
HMIN	272	220	196	190
SCAT	36.6	28.2	33.7	49.2
HMAX	360	287	262	296
SHMAX	263	228	150	155
KM				

370	508
360	508
350	498
340	469
330	422
320	354
310	271
300	189
290	105 608
280	53.7 599
270	553 348
260	469 348
250	310 336
240	150 313
230	66.8 268
220	194 94.3
210	97.2 65.5
200	40.2 42.0
190	
180	
170	
160	
150	
140	
130	
120	
110	

## ELECTRON DENSITY

PUERTO RICO

60 W

8 JAN 1960

TIME 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300

QUAL	A	S
HMIN	109	109
SCAT	52.4	52.7 47.2 61.4 61.0 55.7
HMAX	302	312 305 319 343
SHMAX	1566	1730 1624 1675 1971 1863 1187
KM		

350	1984
340	1983
330	1962 2260
320	1846 1683 1914 2260
310	1669 1845 1969 1674 1835 2242 1741
300	1668 1822 1963 1643 1740 2187 1734
290	1647 1756 1919 1590 1611 2097 1696
280	1596 1657 1825 1509 1446 1966 1626
270	1509 1542 1697 1411 1272 1803 1523
260	1401 1394 1522 1295 1129 1583 1391
250	1259 1240 1328 1143 944 1341 1224
240	1119 1111 1096 1004 778 1096 1020
230	960 960 893 853 643 823 754
220	834 820 727 716 530 597 446
210	710 704 599 608 446 425 127
200	616 585 503 508 379 303 117
190	536 484 426 429 318 225 49.6
180	468 403 362 362 262 177
170	412 335 310 306 215 143
160	362 282 262 262 176 120
150	318 244 225 225 141 105
140	273 213 192 192 124 95.5
130	227 227 194 174 173 119 90.5
120	191 184 164 161 114 85.5
110	127 112 49.6 12.4 12.4



## ELECTRON DENSITY

PUERTO RICO

60 W

11 JAN 1960

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL			F	F		F						
HMIN	217	219	221	198	229	210	217	240	109	109	110	110
SCAT	40.4	45.5	42.2	66.6	52.4	57.3	58.8	38.0	44.9	36.0	45.5	77.2
HMAX	314	332	306	361	361	353	352	306	279	266	266	296
SHMAX	267	272	241	270	257	279	333	287	1121	1318	1405	1320
KM												
370				268	335							
360				268	335	335	417					
350				266	331	335	417					
340		424		261	321	331	413					
330		424		253	305	322	403					
320	469	418		242	284	307	387					
310	468	401	446	226	255	287	366	625				
300	455	373	444	209	221	262	337	621				
290	426	335	430	190	185	234	302	595				
280	386	286	403	170	149	203	259	551	1669			
270	329	229	366	150	114	170	210	477	1651	2327	2063	1158
260	266	166	310	132	83.8	137	151	362	1593	2310	2055	1126
250	193	109	219	114	58.2	105	97.2	161	1494	2209	2000	1089
240	112	71.4	112	97.2	41.4	74.3	66.9	17.4	1361	2032	1895	1037
230	62.6	45.0	56.7	82.7	4.7	52.7	45.9	1158	1731	1742	974	
220	19.6	2.5		68.2		33.5	12.4	917	1341	1555	900	
210		52.5				679	1004	1279	822			
200		12.4				459	608	987	739			
190						310	389	643	651			
180						219	286	417	551			
170						161	227	310	440			
160						127	185	252	335			
150						108	153	209	276			
140						94.5	130	175	231			
130						86.2	121	157	189			
120						75.7	114	147	168			
110						40.2	49.6	12.4	60.0			

## ELECTRON DENSITY

PUERTO RICO

60 W

11 JAN 1960

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL			A	A	A	A	A	A	A	A	A	A
HMIN	109	109	109	108	110	111	209					
SCAT	67.2	64.5	69.1	59.3	70.9	59.4	54.9					
HMAX	322	329	335	339	345	326	323					
SHMAX	1577	1806	1889	1873	2120	1711	1208					
KM												
360			360									
350			350									
340			340									
330			330	1393	1669	1786	1919					
320			320	1393	1660	1648	1739	1860	1902	1668		
310			310	1381	1631	1612	1677	1802	1873	1646		
300			300	1354	1582	1559	1579	1717	1817	1599		
290			290	1307	1508	1483	1467	1620	1727	1519		
280			280	1255	1423	1394	1341	1508	1619	1424		
270			270	1180	1314	1289	1215	1379	1486	1285		
260			260	1096	1190	1171	1105	1240	1323	1129		
250			250	994	1064	1050	984	1044	1160	917		
240			240	898	927	917	863	938	975	679		
230			230	803	794	794	744	794	777	417		
220			220	716	679	685	631	671	591	179		
210			210	634	586	599	528	553	417	12.4		
200			200	564	512	522	442	446	291			
190			190	496	451	455	369	362	209			
180			180	433	398	396	307	291	163			
170			170	372	347	344	256	236	134			
160			160	318	302	296	215	198	114			
150			150	275	262	255	189	167	102			
140			140	237	230	224	169	146	94.5			
130			130	190	205	204	156	136	89.5			
120			120	170	186	185	148	124	84.6			
110			110	71.4	60.0	112	97.2	71.4				

## ELECTRON DENSITY

PUERTO RICO

60 W

12 JAN 1960

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL			F	F								
HMIN	211	208	190	194	294	283	258	230	110	112	109	110
SCAT	46.1	31.6	39.5	58.5	59.6	50.5	45.8	36.7	30.4	35.9	51.7	66.8
HMAX	298	271	269	294	434	394	348	295	257	259	275	301
SHMAX	408	187	154	86	179	184	237	352	721	902	1227	1365
KM												
440			208									
430			208									
420			206									
410			200									
400			191	262								
390			181	262								
380			166	257								
370			149	247								
360			129	231								
350			109	212	396							
340			90.4	186	393							
330			72.6	155	381							
320			56.4	121	360							
310			43.6	89.7	330							
300	716		115	18.4	62.4	289	794					
290	711		115	40.2	236	790						
280	689	469	114		172	760		1669	1309			
270	652	469	298	110		83.8	702		1665	1270		
260	597	455	294	105		23.7	608	1640	1555	1635	1214	
250	508	420	280	98.8			446	1620	1533	1574	1152	
240	389	354	257	90.5			198	1509	1446	1482	1064	
230	228	240	227	80.4			12.4	1316	1297	1363	960	
220	88.5	97.2	175	69.2				875	1096	1143	854	
210		24.6	112	55.4				477	834	917	746	
200		57.2	36.8					286	588	660	631	
190								192	389	446	518	
180								140	294	327	417	
170								109	234	259	335	
160								87.7	186	202	286	
150								81.1	149	157	232	
140								77.8	127	142	174	
130								74.4	120	137	157	
120								69.8	113	131	149	
110								12.4	97.2	112		

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL			A	A	A	A	A	A	A	A	A	A
HMIN	108	110	106	109	109		199	196	208	199	199	
SCAT	60.4	51.3	60.4	60.4	75.8	74.0		52.4	58.7	29.5	36.7	35.8
HMAX	307	300	308	336	337		315	326	292	284	270	
SHMAX	1586	1423	1514	1564	1501		990	830	477	343	147	
KM												
340			340									
330			330									
320			320									
310			310	1654	1669	1528	1277	1285		1420	1046	
300			300	1649	1669	1520	1240	1247		1389	995	1119
290			290	1623	1652	1492	1189	1194		1335	947	1118
280</td												

## ELECTRON DENSITY

PUERTO RICO

60 W

13 JAN 1960

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A	C	C	C	C	C	C	C	C			
HMIN	196									110	108	109
SCAT	41.3									34.3	46.4	37.1
HMAX	310									270	277	262
SHMAX	195									1019	1325	1157
KM												
320	310											
310	310											
300	306											
290	292											
280	269											
270	238											
260	198											
250	161											
240	122											
230	90.4											
220	65.2											
210	46.1											
200	16.3											
190												
180												
170												
160												
150												
140												
130												
120												
110												

## ELECTRON DENSITY

PUERTO RICO

60 W

13 JAN 1960

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	A	A	A	A	A	A	A	A	A	A
HMIN	110	109	110	109	110	110	110	110	208	205	225	191
SCAT	57.8	57.9	61.6	59.5	70.8				61.5	51.1	33.0	38.4
HMAX	300	304	309	303	319				329	327	296	273
SHMAX	1505	1441	1496	1253	1402				1022	752	537	292
KM												
390												
380												
370												
360												
350												
340												
330												
320												
310	1569	1500	1514	1240	1310				1259	1042		
300	1569	1499	1506	1239	1291				1218	996	1265	245
290	1558	1480	1479	1225	1259				1160	929	1255	233
280	1524	1439	1432	1193	1211				1083	843	1193	582
270	1466	1375	1364	1143	1158				991	733	1072	581
260	1380	1282	1269	1075	1088				875	608	887	566
250	1277	1175	1168	993	992				728	461	573	530
240	1156	1050	1050	903	885				540	310	240	477
230	1012	917	896	806	764				349	179	60.0	389
220	875	780	754	711	643				179	83.8		
210	754	657	635	622	540				40.2	42.4		
200	634	554	534	540	446							
190	534	468	451	462	374							
180	452	397	385	389	315							
170	383	340	328	328	262							
160	326	294	281	278	219							
150	282	254	243	236	187							
140	247	222	210	203	164							
130	219	198	192	179	145							
120	185	184	181	168	133							
110	49.6	83.8	40.2	71.4	49.6							

## ELECTRON DENSITY

PUERTO RICO

60 W

14 JAN 1960

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
J												
QUAL												
HMIN	289	286	204	189	338	262	283	259	199	109	110	
SCAT	55.2	61.5	45.8	39.5	52.6	55.7	63.4	33.1	32.5	44.6	43.1	
HMAX	415	425	301	256	431	384	414	322	254	284	284	
SHMAX	183	222	219	74	70	139	171	184	619	1215	1515	
KM												
440												
430	257											
420	240	256										
410	240	252										
400	235	246										
390	227	236										
380	214	223										
370	197	206										
360	175	186										
350	152	162										
340	125	137										
330	99.5	112										
320	75.2	87.0										
310	54.8	62.7	355									
300	37.0	45.2	355									
290	1.8	16.1	350									
280		336	47.3									
270		314	25.1									
260		286	148									
250		244	147									
240		194	141									
230		137	132									
220		79.4	120									
210		40.2	97.2									
200			66.0									
190			12.4									
180												
170												
160												
150												
140												
130												
120												
110												

## ELECTRON DENSITY

PUERTO RICO

60 W

14 JAN 1960

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
S												
QUAL	A	A	A	A	A	A	A	A	A	A	A	A
HMIN	108	109	109	109	108	109	238	221	227	208	193	190
SCAT	50.5	54.2	60.0	70.2	76.4	59.4	60.9	44.6	45.0	51.4	57.3	52.0
HMAX	301	315	328	339	339	329	356	328	310	320	343	339
SHMAX	1468	1600	1786	2010	1980	1456	1370	1056	928	565	576	420
KM												
360												
350												
340												
330												
320												
310	1669	1793	1753	1701	1546	1577	1758	1683	794	688	513	
300	1668	1636	1705	1646	1616	1460	1363	1603	1662	764	597	454
290	1650	1579	1621	1567	1551	1377	1221	1466	1600	723	547	412
280	1599	1486	1519	1469	1470	1275	1050	1271	1496	672	490	362
270	1507	1370	1387	1355	1377	1163	834	1020	1362	608	424	310
260	1387	1240	1230	1268	1030	608	679	1143	523	346	253	
250	1247	1109	1080	1118	1143	884	310	389	794	430	271	198
240	1117	960	901	986	1004	735	60•0	161	335	335	198	151
230	960	827	744	854	867	594		71•4	71•4	240	143	112
220	806	716	614	726	725	471					143	93.1
210	679	618	519	608	597	374					40•2	60•0
200	568	536	449	508	490	298						32•2
190	466	463	389	423	402	240				</		



## ELECTRON DENSITY

PUERTO RICO		60 W										17 JAN 1960		
TIME		0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	
DUAL	A						5	F						A
MIN	218	204	218	205	260	200	207	221	110	111	109			
SCAT	38.4	28.4	57.9	65.7	85.1	69.3	61.6	45.6	49.6	44.8	42.2			
I-MAX	295	268	334	349	442	367	348	325	293	296	286			
H-MAX	276	140	147	157	181	159	153	253	968	1450	1527			
KM														
450							152							
440							152							
430							151							
420							149							
410							146							
400							142							
390							137							
380							132							
370							126	156						
360							117	156						
350							170	108	154	174				
340							189	169	97.4	150	174			
330							188	166	86.2	145	171	410		
320							186	161	75.5	137	165	409		
310							181	153	65.2	128	157	400		
300	557						172	145	55.9	117	147	380	1316	2032
290	555						163	134	47.5	106	135	353	1314	2022
280	536						149	122	39.1	94.7	121	312	1293	1965
270	499	355					131	108	20.0	82.9	105	257	1246	1853
260	446	347	110	93.4				71.4	88.1	191	1175	1704	2017	
250	362	317	87.4	78.2				61.5	71.4	127	1075	1482	1829	
240	249	262	64.1	64.0				52.7	58.1	77.4	917	1221	1555	
230	112	112	44.6	51.3				45.1	46.6	45.8	694	966	1225	
220	26.8	112	8.1	40.2				35.0	31.3	4.3	508	679	934	
210		49.6		12.4				17.6	7.7		389	508	679	
200											286	384	495	
190											223	305	394	
180											179	249	330	
170											146	204	280	
160											123	170	236	
150											107	143	195	
140											96.0	126	170	
130											89.6	120	156	
120											81.2	113	147	
110											40.2		97.4	

## ELECTRON DENSITY

## ELECTRON DENSITY

PUERTO RICO		60 W		18 JAN 1960								
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL					A	A	A					
HMIN	232	224	219	200	194	254	228	246	109	109	110	110
SCAT	45°.9	34°.7	28°.0	71°.2	69°.4	65°.4	68°.9	49°.5	37°.0	54°.7	48°.4	69°.6
HMAX	336	299	271	315	355	389	386	377	258	297	287	331
HMIN	398	305	181	206	189	128	177	229	652	1270	1614	2024
KM												
390							143	179				
380							143	179	310			
370							140	177	308			
360							189	136	173	301		
350							188	131	167	286		
340	652						187	122	159	266		190°
330	649						183	113	149	240		190°
320	632				240		176	102	138	207		1894
310	599				240		168	90°.0	125	172		1862
300	554	679			237		159	77°.6	109	139	1500	1811
290	486	668			233		147	64°.9	94°.1	108	1494	2096
280	400	628	508		225		133	52°.1	79°.5	80°.4	1463	2085
270	297	564	508	216	120	40°.2	66°.4	60°.0			1407	2033
260	161	458	489	206	105	15°.0	54°.6	43°.3	1191	1324	1955	1538
250	83°.8	286	439	194	90°.6		44°.5	12°.4	1175	1217	1786	1264
240	46°.5	127	349	177	75°.9		28°.2		1117	1096	1605	1084
230		49°.6	198	149	62°.0		5°.6		1020	917	1374	
220		49°.6	109	49°.6					846	754	1126	
210					60°.0	40°.2			608	592	887	
200							14°.9		389	422	679	532
190									240	369	520	43°.7
180									164	296	395	356
170									127	233	317	29°.1
160									105	187	262	21°.9
150									90°.9	153	219	15°.7
140									81°.8	131	179	14°.1
130									76°.4	121	158	13°.0
120									70°.1	112	146	12°.0
110									12°.4	60°.0	49°.6	11°.0

## ELECTRON DENSITY

## ELECTRON DENSITY

PUERTO RICO

60 W

19 JAN 1960

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL		F	F	F	A	A		S				
HMIN	215	228	218	218	234	226	181	235	111	110	108	109
SCAT	49.3	41.1	44.8	49.1	62.8	58.0	80.4	37.7	42.3	36.1	40.2	69.5
HMAX	325	316	316	324	365	357	362	304	275	260	263	285
SHMAX	431	332	320	227	224	230	237	190	728	910	1188	1233
KM	370				262		208					
360					262	286	208					
350					259	285	207					
340					252	280	205					
330	634				335	242	270	200				
320	632	608	548	335	228	256	194					
310	619	605	546	329	212	237	187	403				
300	593	585	530	315	192	216	177	402				
290	553	548	501	294	168	191	165	390		1290		
280	501	493	460	267	140	161	152	362	1119		1289	
270	435	417	400	234	112	127	139	326	1115	1612	1846	1275
260	362	323	318	198	83.8	94.5	125	262	1083	1612	1843	1249
250	279	198	198	154	60.0	67.4	110	161	1019	1584	1799	1205
240	187	89.0	107	107	32.8	46.7	95.5	55.1	924	1491	1698	1158
230	102	24.6	57.1	60.0	16.4	80.5		781	1353	1555	1096	
220	43.9		12.4	12.4	66.1		608	1143	1319	1004		
210					52.3		446	834	1050	883		
200					42.9		316	508	754	741		
190					22.3		225	328	527	595		
180							166	246	389	455		
170							127	198	310	345		
160							105	161	262	279		
150							93.8	136	221	233		
140							87.3	124	187	176		
130							76.0	117	162	156		
120							64.4	108	150	147		
110							40.2	112	127			

## ELECTRON DENSITY

PUERTO RICO

60 W

19 JAN 1960

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A		A								
HMIN	110	110	110	108	109	108	208	208	209	225	207	203
SCAT	62.0	56.4	63.2	63.0	59.4	61.4	54.0	47.0	34.0	36.1	37.9	57.6
HMAX	326	314	319	324	314	306	314	336	313	305	300	340
SHMAX	1861	1738	1686	1779	1689	1481	886	886	871	873	864	893
KM	350											
340												362
330	1786				1727							362
320	1781	1846	1669	1725	1667		1167	922	896			
310	1756	1843	1650	1707	1666	1160	877	895	754	477	337	
300	1707	1816	1667	1644	1664	1137	814	871	751	477	318	
290	1633	1759	1584	1605	1599	1096	700	817	721	468	294	
280	1548	1674	1504	1520	1524	1042	626	733	667	441	264	
270	1427	1555	1413	1410	1432	1521	526	508	509	573	397	228
260	1276	1413	1305	1290	1319	1435	866	889	877	458	344	187
250	1121	1251	1165	1143	1189	1327	744	762	735	319	281	148
240	967	1044	1026	1004	1050	1166	108	167	198	185	213	112
230	834	900	875	854	895	938	446	101	108	60.0	143	87.6
220	716	737	742	716	735	794	62	70.0	74.7	76.8	54.5	
210	626	608	619	601	586	597	77.	13.4	4.9	29.1	30.0	
200	550	504	515	503	463	446						
190	482	434	425	426	373	335						
180	417	381	357	367	310	252						
170	362	339	310	319	262	196						
160	310	299	270	278	230	159						
150	269	262	224	240	202	135						
140	232	226	198	205	177	118						
130	197	196	176	180	158	107						
120	161	180	165	167	147	98.4						
110	60.0	12.4	40.0	37.8	97.2	47.6	40.0					

## ELECTRON DENSITY

PUERTO RICO

60 W

20 JAN 1960

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL		F			A							
HMIN	240	212	228	236	200	246	245	247	108	110	109	108
SCAT	46.5	37.3	46.5	45.5	50.3	61.7	64.8	49.1	43.8	43.6	40.2	53.7
HMAX	337	297	330	345	294	373	396	341	281	295	272	305
SHMAX	275	217	213	202	144	136	176	242	843	1179	1296	1937
KM	400				189							
390					188							
380					161	186						
370					161	181						
360					159	173						
350		316			155	164	382					
340	446	335	315		149	153	382					
330	444	335	308		140	139	377					
320	431	331	293		129	124	364					
310	408	320	270		117	108	343		2294			
300	376	432	300	240	224	103	91.8	316	1669	2288		
290	330	428	275	198	224	88.3	76.2	277	1240	1664	2248	
280	270	408	240	154	220	73.2	61.8	225	1240	1622	2063	2168
270	198	374	192	112	209	57.1	48.9	161	1221	1535	2062	2049
260	120	325	143	74.5	197	42.5	36.8	93.1	1170	1416	2018	1893
250	60.0	251	93.5	49.6	180	12.4	12.4	40.2	1090	1240	1907	1686
240	167	54.5	17.1	159				960	1004	1739	1446	
230	89.8	12.4			127			794	754	1495	1185	
220	47.3		86.9			620	559	1143	917			
210			49.6			454	426	794	705			
200						325	335	524	554			
190						240	274	384	452			
180						182	225	317	378			
170						143	184	270	325			
160						119	151	227	282			
150						103	130	190	225			
140						93.1	119	161	172			
130						86.4	111	143	148			
120						71.4	103	134	136			
110						40.2	40.2	112	112			

## ELECTRON DENSITY

PUERTO RICO

60 W

20 JAN 1960

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A		A								
HMIN	113	109	109	109	110	209	189	227	222	258	219	
SCAT	66.9	64.9	62.4	54.1	58.5	63.4	63.4	60.6	44.9	54.4	46.8	
HMAX	329	340	346	322	311	326	340	376	359	385	354	
SHMAX	1823	1886	2255	2086	1750	1262	805	738	545	630	609	
KM	390											
380												854
370												853
360												838
350												875
340												870
330	1640	1659	2124	2396		1555	891	754	716	637	817	
320	1632	1629	2065	2395	2032	1553	874	696	647			

## ELECTRON DENSITY

PUERTO RICO		60 W										21 JAN 1960		
TIME		0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	
OUAL	J										A	A		
HMIN		241	280	201	194	230	249	211	251	109	109	110		
SCAT		41.9	47.5	45.0	33.4	77.5	54.3	59.4	53.5	38.4	54.4	71.5		
HMAX		348	400	296	271	425	369	353	352	282	288	320		
SHMAX		418	615	686	217	250	200	213	381	1170	1278	1905		
KM														
430								219						
420								219						
410			875					217						
400			875					213						
390			864					209						
380			834					201						
370			782					191	262					
360			716					180	261	251	573			
350	697		643					167	255	251	573			
340	691		560					153	244	248	566			
330	662		467					138	229	242	548		1786	
320	617		362					122	210	232	521		1786	
310	550		240					103	186	221	485		1777	
300	466	137	1240					91.4	159	203	439		1750	
290	367	65.1	1234					78.5	131	181	366	2161	1528	1706
280	274		1201	484	67.0	102	157		255	2160		1519	1644	
270	179		1136	484	56.7	74.3	131		137	2112		1485	1575	
260	97.2		1050	470	47.8	47.8	105	60.0	1991			1424	1481	
250	49.6		892	484	39.1	7.1	82.7		1810			1352	1357	
240			643	377	20.0			63.4			1511		1240	1211
230			362	286				47.6			960		1096	1061
220			143	179				27.6			540		917	898
210			60.0	83.8							327		731	739
200				40.2							215		558	608
190											156		438	498
180											118		349	417
170											95.3		286	340
160											89.5		231	286
150											81.1		187	232
140											77.8		156	188
130											74.5		140	161
120											69.9		132	150
110											40.2		83.8	83.8

## ELECTRON DENSITY

PUERTO RICO			60 W			21 JAN 1960						
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	A			A	A					
HMIN				110	109			189	187	261	249	229
SCAT				80.0	60.3			56.7	67.4	39.6	54.8	44.3
HMAX				373	349			323	348	357	372	336
SHMAX				2530	2433			1141	729	435	477	419
KM												
380				1969								625
370				1968								625
360				1955								617
350				1926	2465							599
340				1882	2453							688
330				1823	2406			1446	770	679	531	685
320				1745	2326			1445	750	608	481	665
310				1655	2207			1426	721	508	417	626
300				1555	2060			1385	683	398	356	573
290				1432	1881			1318	639	270	286	491
280				1304	1680			1240	580	143	219	389
270				1173	1470			1127	508	64.3	138	291
260				1050	1255			988	435		76.0	191
250				924	1022			834	357		12.4	104
240				805	834			679	286			55.2
230				698	679			524	213			5.8
220				608	558			362	150			
210				533	469			210	97.2			
200				465	397			97.2	60.0			
190				403	338			12.4	19.9			
180				350	286							
170				303	244							
160				262	209							
150				227	181							
140				198	159							
130				176	142							
120				161	132							
110				124	71.4							

## ELECTRON DENSITY

PUERTO RICO		60 W										22 JAN 1960		
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100		
OUAL													S	A
HMIN	223	229	228	204	235	238	258	261	109	110	111	113		
SCAT	40.5	34.4	35.7	44.1	71.8	46.5	54.5	37.1	39.5	40.2	38.2	68.1		
HMAX	324	301	305	308	417	352	378	326	272	284	272	316		
HMAX	351	257	218	193	317	205	191	231	793	1260	1406	2086		
KM														
420					304									
410					303									
400					299									
390					293									
380					283			251						
370					270			250						
360					255	304	244							
350					238	304	232							
340					215	299	219							
330	616				191	287	200	500						
320	615				166	267	179	497						2096
310	598	582	454	310	141	240	152	477						2092
300	561	582	452	308	116	209	123	440						2068
290	508	564	435	298	93.8	173	95.3	379		1907				2021
280	432	529	399	279	75.4	134	71.4	286	1316	1901	2227			1951
270	342	467	347	253	60.0	99.5	49.6	161	1315	1847	2225			1856
260	240	362	275	219	48.0	68.5	12.4	1288	1729	2174	1747			
250	149	206	179	179	37.5	45.5		1217	1555	2046	1610			
240	79.4	97.2	83.8	136	12.0	8.0		1114	1341	1839	1435			
230	43.6	12.4	21.2	88.8				917	1073	1555	1240			
220				56.7				694	794	1240	1004			
210				27.3				486	586	943	780			
200								335	434	667	622			
190								235	324	477	502			
180								172	257	362	408			
170								132	209	294	335			
160								108	172	240	286			
150								94.6	145	201	238			
140								87.2	127	168	198			
130								79.6	119	153	175			
120								71.4	108	143	162			
110								40.2	12.4					

## ELECTRON DENSITY

### ELECTRON DENSITY

PUERTO RICO

60 W

3 JAN 1960

TIME 0000 0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100

DUAL														
HMIN	245	240	219	221	237	239	192	220	110	109	109	109	109	109
SCAT	40.6	38.5	38.0	44.7	52.7	53.4	55.1	43.0	44.2	43.6	43.6	52.7	52.7	52.7
HMAX	350	334	308	323	368	358	310	305	262	279	275	279	279	279
SHMAX	352	347	309	271	311	320	267	255	76.9	1241	1437	136.9	136.9	136.9

370		410											
360	599	408	439										
350	599	398	437										
340	591	652	380	427									
330	564	650	439	357	408								
320	520	629	439	325	395	362							
310	467	588	509	470	286	251	362	461					
300	377	523	597	409	240	310	359	460					
290	294	429	566	380	196	256	350	448					
280	210	317	520	338	152	198	335	424					
270	127	209	452	288	109	143	316	389	1252	1888	2026	1657	
260	71.4	107	350	219	71.4	91.8	296	335	1252	1821	1974	1615	
250	34.0	54.8	240	154	48.2	54.0	254	262	1229	1706	1986	1542	
240			137	92.4	12.4	6.1	207	161	1171	1543	1711	1446	
230		60.0	49.6				158	77.4	1083	1290	1500	1312	
220		4.5					109		940	1032	1240	1145	
210								71.4		713	716	989	960
200								43.7		508	508	754	777
190										335	378	548	608
180										219	286	424	462
170										155	224	339	362
160										122	179	275	299
150										104	146	223	256
140										94.0	126	179	212
130										87.6	121	159	178
120										76.8	115	150	166
110										60.0	112	60.0	

110 6000 112 6000

## ELECTRON DENSITY

Puerto Rico

60 w

3 JAN 1964

TIME 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300

## ELECTRON DENSITY

PUERTO RICO

60 W

24 JAN 1960

TIME 0000 0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100

QUAL															
HMLIN	257	229	239	196	247	214	197	249	111	110	109	108			
SCAT	41.4	39.5	36.5	72.2	51.4	66.6	57.0	37.5	54.7	45.5	50.7	51.4			
HMAX	357	330	322	373	368	359	335	319	295	289	291	296			
SHMAX	285	282	231	397	288	327	243	254	1131	1611	2044	1936			

## ELECTRON DENSITY

PUERTO RICO

60 W

24 JAN 1960

TIME 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300

QUAL	A	A	A	A	A	A	F			
HMIN	109				110	190	243	222	229	
SCAT	59.5				58.4	60.5	60.4	56.2	49.2	50.0
HMAX	316				336	329	351	367	352	341
SHMAX	2049				2231	1307	970	795	761	601

## ELECTRON DENSITY

PUERTO RICO		60 W										25 JAN 1960			
TIME		0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100		
DUAL	F													109	
HMIN		247	239	229	201	215	255	200	230	111	110	110	110	6441	
SCAT		52.6	51.3	33.4	50.8	44.8	41.4	47.8	36.2	41.1	49.3	49.6	64.1		
HMAX		356	333	287	297	316	346	309	290	268	285	286	302		
SHMAX		628	637	282	259	197	208	226	293	882	1527	1896	1926		
KM															
360		896													
350		893													
340		874	1016												
330		839	1015												
320		786	999												
310		720	965											1969	
300		643	911											1968	
290		549	834	697	396	306	247	338	670					1952	
280		429	732	690	385	265	140	310	656					1911	
270		262	586	652	368	232	83.8	287	618	1393	1987	2403		1847	
260		127	362	585	342	196	42.3	251	553	1380	1905	2294		1756	
250		40.2	143	477	310	151		209	446	1325	1786	2161		1644	
240		12.4	240	270	103			161	262	1228	1616	1940		1509	
230			40.2		219	63.2		112	49.6	1056	1408	1651		1341	
220					143	30.7		71.4		905	1143	1341		1185	
210						65.5		43.1		679	875	1069		1004	
200										477	643	794		834	
190											335	477	573		661
180											240	362	455		519
170											173	272	371		405
160											136	215	310		330
150											113	179	265		279
140											103	154	230		236
130											91.8	140	204		203
120											78.7	132	185		187
110												49.6	49.6		127

## ELECTRON DENSITY

## ELECTRON DENSITY

ELECTRON DENSITY

## ELECTRON DENSITY

PUERTO RICO			60 W			27 JAN 1969						
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A	A										
HMIN	268	230	251	214	203	237	218	226	114	110	110	109
SCAT	49.5	70.5	47.3	41.7	67.5	52.5	48.5	41.0	36.3	42.5	54.7	60.0
HMAX	383	395	355	300	328	366	328	326	267	289	298	307
SHMAX	361	515	371	271	262	264	238	334	720	1424	2004	1910
KM												
400												
390	524	539										
380	523	534										
370	514	523										
360	495	506	582									
350	464	485	580									
340	425	459	568									
330	372	424	543		304	307	355	548				
320	310	380	905		303	281	352	546				
310	243	328	452	492	298	248	342	530				1969
300	179	270	389	492	220	211	323	498				2396 1962
290	106	213	304	485	279	173	299	452				2000 2383 1930
280	60.0	161	213	464	265	138	266	394				1978 2331 1870
270	12.4	118	112	429	247	103	225	326	1815	1899	2240	1786
260	83.8	60.0	380	227	71.4	179	250	1203	1754	2108	1669	
250	58.4			310	201	46.7	127	171	1143	1577	1941	1527
240	40.0			225	165	12.4	81.4	97.0	1050	1364	1722	1359
230				122	121		49.0	40.0	101	1064	1484	1192
220				49.5	76.2		1.4		716	934	1194	1026
210					41.8				540	657	900	858
200									362	508	679	716
190									249	398	508	594
180									176	320	403	488
170									134	258	332	407
160									109	211	281	341
150									95.0	175	240	286
140									91.2	150	203	246
130									86.4	137	177	213
120									71.4	129	165	191
110										12.4	49.6	143

EDITION 2011

## ELECTRON DENSITY

PUERTO RICO										60 W		28 JAN 1960				
TIME	0000	0100	0200	0300	0400	0500	0600	700	800	900	1000	1100				
DUAL								F					A			A
HMIN	205	219	199	208	240	280	263	268	109	109	109	108				
SCAT	44.3	47.2	49.4	85.7	92.8	67.5	66.3	48.3	55.0	48.2	50.4					
HMAX	305	309	300	359	400	419	399	347	300	290	301					
HMAX	362	248	172	248	221	169	246	300	1183	1557	1898					
KM																
420								184								
410								189	183							
400								189	180	274						
390								188	174	273						
380								186	167	268						
370								184	161	261						
360								229	180	149	250					
350								229	175	136	236	508				
340								226	169	121	220	506				
330								223	163	105	200	493				
320								217	156	87.5	176	469				
310	599	410	257	210	147	69.6	148	437	1500			2361				
300	597	407	257	203	135	51.1	119	389	1500	2177	2361					
290	583	394	254	194	121	32.6	91.5	326	1489	2177	2332					
280	552	373	246	183	105		64.9	230	1453	2147	2256					
270	508	345	232	168	87.3		41.6	97.2	1392	2061	2131					
260	446	300	215	149	67.6				1303	1915	1964					
250	372	240	191	127	46.9				1196	1716	1748					
240	286	168	161	103					1050	1488	1479					
230	179	88.6	129	77.4					851	1218	1203					
220	90.1	12.4	94.1	51.5					643	917	960					
210	42.9		60.0	12.4					446	679	736					
200			4.5						310	500	573					
190									222	379	452					
180									166	301	366					
170									132	243	300					
160									105	198	245					
150									96.7	170	198					
140									92.0	149	169					
130									87.4	137	156					
120									78.1	129	148					
110									40.2	83.8	119					

## ELECTRON DENSITY

PUERTO RICO										60° W	28 JAN	1960
TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL								B				S
HMIN	109	109	108	109	108	109		124	210	229		191
SCAT	72.5	67.7	79.7	80.9	80.1	69.1		54.1	58.7	47.0		57.8
HMAX	333	341	355	355	347	338		328	346	352		338
SHMAX	2219	2057	2297	2185	1819	1410		1098	761	623		431
KM												
360		1786	1683									896
350		1786	1784	1681	1446				939	896		
340	1907	1786	1770	1668	1444	1316			936	883		524
330	1906	1775	1741	1642	1430	1312		1215	922	847		521
320	1892	1744	1699	1603	1406	1293		1210	891	798		511
310	1860	1695	1638	1551	1370	1258		1187	851	733		493
300	1811	1620	1568	1484	1318	1-01		1146	794	643		467
290	1740	1533	1483	1408	1255	1134		1087	725	540		434
280	1661	1478	1387	1317	1187	1050		1010	643	435		392
270	1555	1297	1278	1219	1112	960		917	540	327		344
260	1429	1143	1159	1119	1021	875		812	446	219		189
250	1298	1017	1041	1011	928	779		695	342	122		229
240	1151	892	427	903	834	686		582	232	58.1		172
230	1014	779	426	804	748	594		477	135	48.5		122
220	887	689	736	716	658	508		375	63.9			85.7
210	778	616	65.	637	573	434						58.9
200	679	556	573	557	493	362						40.2
190	585	502	49°	477	417	30°						
180	498	450	428	409	352	250						
170	423	400	377	351	298	206						
160	362	349	326	301	254	174						
150	313	303	286	260	219	150						
140	273	262	254	228	190	134						
130	236	227	224	203	167	112						
120	209	207	204	185	152	93.3						
110	143	127	123	97.3	112	60.0						

## ELECTRON DENSITY

PUERTO RICO

60 W

29 JAN 1960

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	S	F	F	F	F	J						
HMIN	207	216	227	234	238	109	110	109	109	109		
SCAT	54.8	42.7	65.9	62.5	40.0	55.5	44.8	48.0	60.0			
HMAX	350	314	389	367	329	305	300	298	315			
SHMAX	332	245	241	242	333	1236	1692	1909	2144			
KM												
390			251									
380			250									
370			246	286								
360	417		239	285								
350	417		229	281								
340	413		217	273								
330	404		201	261	616							
320	384	403	183	245	608		2227					
310	362	402	161	226	581	1555	2310	2222				
300	328	392	140	204	536	1552	2310	2430	2190			
290	291	370	118	179	469	1526	2279	2414	2128			
280	250	335	97.2	147	374	1476	2191	2346	2032			
270	198	294	78.9	112	270	1400	2048	2220	1907			
260	152	245	62.1	81.3	143	1304	1842	2050	1754			
250	114	192	48.9	54.6	74.6	1170	1579	1825	1555			
240	83.8	137	34.3	26.8	21.2	989	1293	1555	1361			
230	60.0	83.8	6.9			754	990	1272	1143			
220	43.9	40.2				540	754	977	960			
210	12.4					389	573	754	794			
200						276	439	608	657			
190						205	352	494	546			
180						156	291	410	458			
170						124	240	339	382			
160						103	198	282	317			
150						94.4	168	235	262			
140						90.2	147	198	225			
130						85.9	137	177	200			
120						76.0	130	167	187			
110						12.4	12.4	97.2	112			

## ELECTRON DENSITY

PUERTO RICO

60 W

29 JAN 1960

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	A	A	A									
HMIN	107		115	109	108	110	199	189	204			
SCAT	58.0		74.6	73.9	73.7	69.9	74.6	62.9	64.9			
HMAX	318		346	355	351	344	359	351	384			
SHMAX	1889		2094	2063	2005	1743	1556	1110	828			
KM												
390			390									
380			380									
370			370									
360			360									
350			350									
340			340									
330	112	110	110	109	110	109	109	204	198	208	244	246
SCAT	63.8	59.8	68.6	67.6	68.8	68.6	55.5	44.3	51.0	54.5	37.5	33.8
HMAX	320	324	334	332	334	344	341	331	341	387	338	295
SHMAX	2176	2094	2183	1839	1718	1714	1173	838	735	756	611	506
KM												
390			390									
380			380									
370			370									
360			360									
350			350									
340			340									
330	2128	2048	1967	1668	1526	1512	1215	1004	716	1153		
SCAT	320	2128	2046	1948	1656	1512	1533	1472	1195	973	616	1096
HMAX	310	2115	2021	1908	1624	1481	1484	1399	1143	922	502	1004
SHMAX	2077	1968	1847	1578	1429	1414	1308	1060	851	380	866	1050
KM												
390			390									
380			380									
370			370									
360			360									
350			350									
340			340									
330	2128	2048	1967	1668	1526	1512	1215	1016	802	1167		
SCAT	320	2128	2046	1948	1656	1512	1533	1472	1195	973	616	1096
HMAX	310	2115	2021	1908	1624	1481	1484	1399	1143	922	502	1004
SHMAX	2077	1968	1847	1578	1429	1414	1308	1060	851	380	866	1050
KM												
390			390									
380			380									
370			370									
360			360									
350			350									
340			340									
330	2128	2048	1967	1668	1526	1512	1215	1016	802	1167		
SCAT	320	2128	2046	1948	1656	1512	1533	1472	1195	973	616	1096
HMAX	310	2115	2021	1908	1624	1481	1484	1399	1143	922	502	1004
SHMAX	2077	1968	1847	1578	1429	1414	1308	1060	851	380	866	1050
KM												
390			390									
380			380									
370			370									
360			360									
350			350									
340			340									
330	2128	2048	1967	1668	1526	1512	1215	1016	802	1167		
SCAT	320	2128	2046	1948	1656	1512	1533	1472	1195	973	616	1096
HMAX	310	2115	2021	1908	1624	1481	1484	1399	1143	922	502	1004
SHMAX	2077	1968	1847	1578	1429	1414	1308	1060	851	380	866	1050
KM												
390			390									
380			380									
370			370									
360			360									
350			350									
340			340									
330	2128	2048	1967	1668	1526	1512	1215	1016	802	1167		
SCAT	320	2128	2046	1948	1656	1512	1533	1472	1195	973	616	1096
HMAX	310	2115	2021	1908	1624	1481	1484	1399	1143	922	502	1004
SHMAX	2077	1968	1847	1578	1429	1414	1308	1060	851	380	866	1050
KM												
390			390									
380			380									
370			370									
360			360									
350			350									
340			340									
330	2128	2048	1967	1668	1526	1512	1215	1016	802	1167		
SCAT	320	2128	2046	1948	1656	1512	1533	1472	1195	973	616	1096
HMAX	310	2115	2021	1908	1624	1481	1484	1399	1143	922	502	1004
SHMAX	2077	1968	1847	1578	1429	1414	1308	1060	851	380	866	1050
KM												
390			390									
380			380									
370			370									
360			360									
350			350									
340			340									
330	2128	2048	1967	1668	1526	1512	1215	1016	802	1167		
SCAT	320	2128	2046	1948	1656	1512	1533	1472	1195	973	616	1096
HMAX	310	2115	2021	1908	1624	1481	1484	1399	1143	922	502	1004
SHMAX	2077	1968	1847	1578	1429	1414	1308	1060	851	380	866	1050
KM												
390			390									
380			380									
370			370									
360			360									
350			350									
340			340									
330	2128	2048	1967	1668	1526	1512	1215	1016	802	1167		

## ELECTRON DENSITY

PUERTO RICO

60 W

31 JAN 1960

	TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	A
OUAL		F	A	A	A	A	A	A	A	A	A	A	A	
HMIN	207	230	215	213	249	215	225	110	109	110	109	109	109	
SCAT	40.1	44.1	31.3	40.6	54.5	83.2	46.9	47.2	46.2	44.6	46.3			
HMAX	300	332	280	297	369	395	321	276	289	294	302			
SHMAX	359	384	220	195	167	228	266	839	1432	1809	1839			
KM														
400														198
390														198
380														197
370														219
360														194
350														217
340														190
330														154
320														148
310														433
300														2243
661	661	558	362	132	134	417	2430	2242	290	1923				
651	651	496	540	359	108	120	394	1969	2425	2207	280	1815		
617	617	417	540	345	83.8	104	358	1143	1948	2369	2107	270	1686	
567	567	316	527	321	60.0	87.0	301	1137	1882	2247	1962	260	1540	
498	498	198	488	288	41.7	73.2	228	1108	1767	2072	1786	250	1375	
400	400	112	417	236	4.5	50.3	148	1053	1609	1834	1573	240	1208	
273	273	55.3	310	170	119	78.6	972	1405	1555	1341		230	1050	
161	161	161	97.2		31.7	36.7	861	1183	1288	1128		220	886	
78.9	78.9	49.6	49.6		1.7.4		729	932	960	917		210	733	
29.1	29.1				573	679	742	741				200	608	
200					446	492	573	600				190	501	
190					315	35.2	455	494				180	412	
180					240	262	372	417				170	343	
170					182	207	310	354				160	294	
160					143	165	260	304				150	250	
150					119	142	219	260				140	214	
140					106	129	190	222				130	196	
130					97.7	122	175	197				120	186	
120					80.2	116	165	185				110	112	
110					49.6	71.4	71.4	71.4						

## ELECTRON DENSITY

PUERTO RICO

60 W

31 JAN 1960

	TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	A
OUAL		F	A	A	A	A	A	A	A	A	A	A	A	
HMIN	207	230	215	213	249	215	225	110	109	110	109	109	109	
SCAT	40.1	44.1	31.3	40.6	54.5	83.2	46.9	47.2	46.2	44.6	46.3			
HMAX	300	332	280	297	369	395	321	276	289	294	302			
SHMAX	359	384	220	195	167	228	266	839	1432	1809	1839			
KM														
400														390
390														380
380														370
370														360
360														350
350														340
340														330
330														320
320														310
310														300
300														1989
661	661	558	362	132	134	417	2430	2242	290	1923				1478
651	651	496	540	359	108	120	394	1969	2425	2207	280	1815		1371
617	617	417	540	345	83.8	104	358	1143	1948	2369	2107	270	1686	
567	567	316	527	321	60.0	87.0	301	1137	1882	2247	1962	260	1540	
498	498	198	488	288	41.7	73.2	228	1108	1767	2072	1786	250	1375	
400	400	112	417	236	4.5	50.3	148	1053	1609	1834	1573	240	1208	
273	273	55.3	310	170	119	142	219	260				230	1050	
161	161	161	97.2		31.7	36.7	861	1183	1288	1128		220	886	
78.9	78.9	49.6	49.6		1.7.4		729	932	960	917		210	733	
29.1	29.1				573	679	742	741				200	608	
200					446	492	573	600				190	501	
190					315	35.2	455	494				180	412	
180					240	262	372	417				170	343	
170					182	207	310	354				160	294	
160					143	165	260	304				150	250	
150					119	142	219	260				140	214	
140					106	129	190	222				130	196	
130					97.7	122	175	197				120	186	
120					80.2	116	165	185				110	112	
110					49.6	71.4	71.4	71.4						



**TABLES OF IONOSPHERIC DATA**

FEBRUARY 1960-JULY 1957

**Table 1**

Point Time	Barrow, Alaska (71.3°N, 156.8°W)						February 1960		
	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	(4.4)	8			4.5	----			
01	(3.5)	7			4.5	(2.65)			
02	(3.4)	3			5.3	----			
03	(5.0)	3			4.4	----			
04	(3.65)	2			4.4	----			
05	---	0			3.6				
06	(4.4)	3			3.6	----			
07	(3.9)	4			4.2	----			
08	(4.5)	8			4.0	(2.40)			
09	(5.3)	16			3.3	(2.60)			
10	5.9	21				2.72			
11	6.5	20			2.3	2.75			
12	7.2	20				2.70			
13	7.7	24				2.70			
14	8.05	26				2.70			
15	0.8	27				2.80			
16	0.9	27				2.90			
17	0.2	26				2.70			
18	6.75	24				2.75			
19	4.9	20			2.4	2.65			
20	(4.2)	15			3.1	2.60			
21	(3.6)	12			3.3	(2.65)			
22	(4.0)	7			3.6	(2.65)			
23	(3.8)	1			6.0	----			

Time: 150.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

**Table 2**

Time	Anchorage, Alaska (61.2°N, 149.9°W)						February 1960		
	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	(2.7)	21						1.9	(2.62)
01	(2.7)	22						2.3	(2.60)
02	2.45	18						3.0	2.50
03	(2.3)	20						2.0	2.50
04	(2.3)	10						2.8	(2.50)
05	(2.5)	19							(2.50)
06	(2.5)	21							(2.45)
07	(3.85)	22					122	(1.50)	(2.60)
08	(4.8)	27					118	(2.00)	(2.90)
09	6.0	20					115	2.20	3.10
10	7.2	27					115	2.65	3.10
11	8.15	28					115	2.75	3.05
12	8.95	28					117	2.75	3.05
13	9.2	29					116	2.75	3.05
14	9.8	28					121	2.60	3.05
15	10.4	28					123	2.40	3.10
16	10.15	28					(126)	2.10	3.12
17	9.4	27					135	1.65	3.15
18	8.0	27					---	---	3.10
19	6.0	27							3.10
20	4.5	26							3.10
21	3.7	25							3.00
22	(3.2)	26							(2.90)
23	>2.35	22							(2.85)

Time: 150.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

**Table 3**

Time	Ft. Monmouth, New Jersey (40.4°N, 74.1°W)						February 1960		
	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	5.6	28	260				2.05		
01	5.55	26	265				2.80		
02	5.25	28	265				2.75		
03	4.9	28	270				2.80		
04	4.9	29	260				2.05		
05	4.65	28	255				2.85		
06	4.4	27	250				2.95		
07	6.0	29	235				3.15		
08	9.0	29	225		115	2.50	3.30		
09	10.0	28	220		110	3.00	3.20		
10	11.0	29	210		110	3.30	3.15		
11	(250)	11.7	29	210	110	3.50	3.05		
12	(260)	12.5	28	215	110	3.50	3.05		
13	(260)	12.2	28	215	112	3.48	3.00		
14	12.2	28	220		110	3.32	3.00		
15	12.2	29	225		110	3.05	3.00		
16	11.8	29	230		112	2.65	3.05		
17	11.5	29	225		(125)	----	3.05		
18	10.4	29	220				3.05		
19	9.2	29	220				3.05		
20	8.0	29	220				3.00		
21	7.0	29	235				2.95		
22	6.4	29	240				2.95		
23	5.95	28	250				2.90		

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

**Table 4**

Time	Boulder, Colorado (40.0°N, 105.1°W)						February 1960		
	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			4.35	26	260				2.78
01			4.0	26	270				2.75
02			4.0	26	275				2.75
03			4.05	26	210				2.80
04			3.9	26	27*				2.75
05			3.8	25	260				2.00
06			3.7	26	270				2.00
07			3.7	26	240		142	1.53	3.00
08			8.9	26	220		107	2.40	3.35
09			10.0	27	215		105	2.90	3.10
10			11.0	27	210		105	3.20	3.10
11			12.2	27	210		103	3.40	3.10
12			(250)	12.8	25	210	105	3.50	3.05
13			(260)	12.8	27	210	103	3.50	3.00
14			(245)	12.6	25	215	103	3.35	3.00
15			12.35	22	220		103	3.10	3.00
16			12.0	25	220		105	2.70	3.00
17			11.6	27	220		<115	2.10	3.10
18			10.2	27	205				3.10
19			6.8	27	205				3.10
20			6.7	27	210				3.10
21			5.8	25	220				3.10
22			4.8	25	235				3.00
23			4.4	26	250				2.90

Time: 105.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

**Table 5**

Time	Washington, D. C. (38.7°N, 77.1°W)						February 1960		
	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	5.6	29	265				2.80		
01	5.45	28	270				2.80		
02	5.2	29	270				2.80		
03	4.9	29	265				2.85		
04	4.9	27	260				2.90		
05	4.5	29	250				2.90		
06	4.3	27	250				3.00		
07	5.65	28	250	<147	1.75		3.15		
08	8.5	28	230	113	2.40		3.35		
09	10.1	29	230	109	2.95		3.20		
10	10.7	29	220	109	3.20		3.10		
11	11.5	29	220	109	3.35		3.05		
12	(260)	12.2	29	215	109	3.45	3.00		
13	(270)	12.1	29	220	109	3.45	2.95		
14	12.3	29	225	109	3.35		2.90		
15	12.0	29	230	109	3.15		2.95		
16	11.9	29	235	111	2.80	2.8	2.95		
17	11.3	29	230	119	2.25		3.00		
18	10.8	29	220	---	---		3.00		
19	9.5	28	220				3.02		
20	8.1	28	230				3.00		
21	7.0	28	235				2.95		
22	6.35	28	250				2.90		
23	5.7	29	250				2.85		

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

**Table 6**

Time	Maui, Hawaii (20.8°N, 156.5°W)						February 1960		
	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			8.0	29	230				3.10
01			6.6	29	235				3.20
02			5.4	29	235				3.20</td

Table 7

Baguio, P. I. (16.4°N, 120.6°E)							February 1960		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	>11.0	26	240				(3.05)		
01	10.4	26	235				3.10		
02	9.8	29	240				3.12		
03	8.0	29	235				3.10		
04	6.5	29	240				3.00		
05	5.0	29	250				2.90		
06	4.8	29	260				2.75		
07	8.4	29	275	<137	2.30		2.95		
08	---	11.0	29	260	119	2.95	3.0	(2.90)	
09	---	(12.5)	29	250	121	(3.40)	3.6	(2.75)	
10	---	(13.8)	29	235	121	(3.78)		(2.65)	
11	---	(13.0)	29	230	119	(3.95)		(2.40)	
12	---	(12.3)	29	230	119	(3.98)		(2.30)	
13	---	(12.8)	29	230	119	3.90		(2.30)	
14	---	(12.6)	29	230	119	(3.80)		(2.35)	
15	---	(12.8)	29	240	119	3.55		(2.52)	
16	---	>12.5	29	250	125	3.20		(2.65)	
17	---	>11.0	29	270	127	2.50		(2.50)	
18	---	>10.4	29	290				(2.42)	
19	---	>10.4	29	350				(2.40)	
20	---	>10.1	18	330				---	
21	---	>11.0	16	290				(2.80)	
22	---	(11.7)	21	250				(2.90)	
23	---	>11.2	24	240				(3.10)	

Time: 120.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 9

Fairbanks, Alaska (64.9°N, 147.0°W)							January 1960		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	(2.6)	5				3.6	----		
01	(2.8)	5				3.9	----		
02	(3.65)	6				4.2	(2.62)		
03	(3.85)	8				4.3	(2.55)		
04	(3.8)	10				4.5	----		
05	(4.1)	12				3.4	(2.65)		
06	(3.95)	10				4.4	(2.50)		
07	(4.15)	12				3.3	(2.55)		
08	(4.5)	17				2.2	(2.80)		
09	(5.4)	20					(3.00)		
10	(6.9)	23					(3.10)		
11	8.3	26					3.10		
12	9.9	27					3.10		
13	10.2	29					3.10		
14	10.6	28					3.10		
15	10.0	29					3.10		
16	9.5	29					3.10		
17	7.95	26					3.12		
18	(6.0)	21					(3.10)		
19	(4.7)	23					(3.05)		
20	(3.6)	19				2.1	2.90		
21	(3.5)	13				2.4	(3.00)		
22	(3.0)	11				3.2	(2.90)		
23	(3.45)	10				3.7	(2.80)		

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Anchorage, Alaska (61.2°N, 149.9°W)							January 1960		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	(2.6)	21						(2.75)	
01	(2.4)	16						(2.70)	
02	(2.45)	20				2.2	(2.50)		
03	(2.3)	10				2.3	(2.52)		
04	(2.05)	22						(2.60)	
05	(2.95)	22						(2.50)	
06	(2.7)	22						(2.55)	
07	(2.7)	25						(2.55)	
08	(4.0)	24						(2.85)	
09	5.6	28				---	---		
10	7.6	27						3.20	
11	9.25	26				---	---		
12	9.95	29				<123	(2.25)		
13	11.4	27				(123)	2.32		
14	10.4	27					3.15		
15	10.0	29				<156	---		
16	10.1	29					3.10		
17	8.25	20					3.10		
18	6.1	23					3.15		
19	4.4	29					3.10		
20	3.55	29					3.00		
21	(3.0)	25					(3.00)		
22	(2.7)	27					(2.85)		
23	(2.65)	22					(2.90)		

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 12

Adak, Alaska (51.9°N, 176.6°W)							January 1960		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00						2.7	28	330	
01						2.8	29	330	
02						2.75	28	330	
03						2.95	28	325	
04						2.9	26	325	
05						2.8	28	335	
06						2.75	28	310	
07						3.5	27	270	
08						6.7	31	230	
09						9.5	31	220	
10						11.0	31	225	
11						12.0	31	225	
12						11.4	31	220	
13						11.8	31	225	
14						11.2	31	225	
15						10.0	31	215	
16						9.0	31	220	
17						7.2	31	210	
18						5.2	31	220	
19						3.5	29	220	
20						2.6	29	255	
21						2.7	31	275	
22						2.6	27	280	
23						2.65	28	290	

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8

Point Barrow, Alaska (71.3°N, 156.8°W)							January 1960		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00						4.3	12		
01						(3.8)	11		
02						(4.3)	7		
03						(4.0)	6		
04						(4.0)	11		
05						(4.2)	15		
06						(3.9)	13		
07						(4.5)	13		
08						(4.95)	10		
09						(4.4)	13		
10						5.0	23		
11						6.3	23		
12						7.0	23		
13						8.0	25		
14						8.05	24		
15						8.6	25		
16						8.65	26		
17						7.15	28		
18						5.7	25		
19						(4.25)	22		
20						4.0	21		
21						(4.3)	19		
22						(4.0)	17		
23						(4.3)	11		

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 13								January 1960										
Fl.	Monmouth, New Jersey (40.4°N, 74.7°W)	foF2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.0	27	<270					2.35	00	3.7	31	230					2.70
01		5.0	29	(200)					2.80	01	3.0	30	230					2.80
02		5.0	29	(270)					2.85	02	3.0	31	275					2.80
03		4.7	29	255					2.95	03	3.0	31	275					2.80
04		4.55	20	(255)					2.88	04	3.0	31	275					2.72
05		4.2	20	(255)					2.85	05	3.0	31	<205					2.70
06		3.9	26	(245)					2.90	06	3.7	31	(275)					2.65
07		4.7	29	<240					3.05	07	4.5	30	250					2.65
08		8.1	29	215	(110)	2.30			3.30	08	7.0	31	225	<125	2.15	2.4		3.30
09		10.4	31	220	(110)	2.60			3.30	09	9.0	30	220	<115	2.80			3.20
10		12.3	30	215		115	3.20		3.20	10	12.0	31	220	100	3.20			3.10
11	---	12.0	31	215		112	3.40		3.20	11	12.6	27	220	107	3.35			3.10
12		12.05	30	215		111	3.45		3.10	12	12.75	30	220	113	4.0			3.05
13		12.5	31	215		112	3.30		3.05	13	12.65	30	220	113	4.40			3.00
14		12.7	29	220		112	3.20		3.00	14	12.6	29	225	111	3.25			2.95
15		12.3	23	225		112	2.90		3.05	15	12.3	30	225	111	2.90			3.00
16		11.0	29	220	(110)	2.42			3.05	16	11.65	30	220	115	2.35	2.6		3.00
17		11.3	30	220	---	----			3.10	17	10.9	29	220	---	1.95	3.0		3.05
18		10.3	29	220					3.05	18	9.5	31	215					3.10
19		8.0	30	215					3.10	19	7.0	31	210					3.15
20		7.0	30	220					3.05	20	5.5	31	215					3.10
21		6.4	30	235					2.90	21	4.4	31	240					3.00
22		5.95	30	240					2.95	22	3.0	31	255					2.98
23		5.65	23	250					2.90	23	3.7	31	270					2.98

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 15								January 1960										
Time	Washington, D. C. (38.7°N, 77.1°W)	foF2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.9	31	265					2.85	00	4.0	29	270					2.82
01		4.9	30	280					2.90	01	4.0	30	270					2.85
02		4.9	30	275					2.92	02	4.0	29	275					2.75
03		4.9	31	260					2.90	03	3.0	29	(210)					2.85
04		4.6	30	260					2.90	04	3.05	30	<200					2.88
05		4.5	29	260					2.80	05	3.0	27	(310)					2.60
06		4.2	28	250					2.90	06	3.0	29	(290)					2.75
07		4.6	31	250					3.00	07	5.7	27	250					3.00
08		7.7	31	225	<121	2.20			3.35	08	9.0	28	225	117	2.50	2.8		3.32
09		10.0	31	225		111	2.75	2.8	3.25	09	10.2	27	225	109	3.10	3.3		3.25
10		12.0	31	225		109	3.10		3.20	10	11.6	27	220	107	3.40	3.6		3.05
11	---	12.0	31	225		109	3.30		3.10	11	12.6	27	220	109	3.60	3.8		3.00
12		12.5	31	225		109	3.40		3.05	12	12.6	29	220	109	3.70	3.9		2.98
13		12.4	31	220		109	3.32		2.95	13	12.5	28	220	110	3.60	3.7		2.05
14		12.4	31	225		109	3.25		2.95	14	12.15	26	220	111	3.50	3.8		2.90
15		12.4	31	230		111	2.95		2.95	15	12.15	26	230	111	3.25	3.3		2.90
16		11.9	31	230		113	2.55		3.00	16	11.6	27	230	111	2.00	3.1		3.00
17		11.4	31	230	(139)	1.95	2.0		3.00	17	10.8	28	230	<123	2.05	2.4		3.00
18		10.6	31	220					3.05	18	9.4	28	210					3.08
19		0.9	31	220					3.10	19	7.05	28	225					3.00
20		7.05	30	220					3.05	20	6.15	28	225					3.12
21		6.1	31	245					2.90	21	4.45	28	240					3.02
22		5.0	31	250					2.95	22	4.1	27	265					2.05
23		5.5	31	255					2.90	23	4.0	29	<200					2.90

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 17								January 1960											
Time	Okinawa I., (26.3°N, 127.8°E)	foF2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00		>0.5	31	245					(2.90)	00	6.4	31	260					3.00	
01		(7.1)	31	245					(2.90)	01	6.5	31	245					3.15	
02		(6.2)	31	240					2.95	02	>5.7	31	230					3.25	
03		(5.2)	31	250					(2.85)	03	4.5	29	230					3.25	
04		4.4	31	245					(2.80)	04	3.6	28	<250					2.95	
05		3.6	31	<300					2.60	05	3.1	29	<305					2.68	
06		3.5	30	<330					2.72	06	>2.9	29	(320)					2.65	
07		5.1	31	295					2.80	07	5.2	31	295	<166	1.68			2.80	
08		10.3	31	250	<(2.55)	3.7			3.20	08	9.9	31	250	(117)	2.65	2.7		3.15	
09	---	12.8	30	240		114	3.10		3.30	09	250	13.0	31	235	111	3.20	3.4		3.20
10	---	13.95	30	230		110	(3.45)	3.7	3.15	10	250	13.5	31	225	107	3.55	4.5		3.15
11	---	14.3	29	220		110	(3.70)	4.0	3.05	11	<275	13.5	31	215	---	107	3.80	4.5	3.00
12	---	(15.8)	29	220		110	(3.85)	4.1	2.90	12	(315)	14.2	31	<220	---	(107)	3.90	4.3	2.85
13	---	(16.9)	29	220		110	3.90	4.1	(2.80)	13	(330)	15.0	31	215	---	<109	3.90	4.2	2.80
14	---	(16.95)	29	220		110	3.80	4.1	(2.85)	14	(320)	15.0	31	<230	---	107	3.85	4.1	2.80
15	---	(16.7)	29	230		110	3.60	3.6	2.85	15	(315)	14.4	31	235	107	3.60	4.3	2.85	
16	---	(16.1)	29	240		112	3.25		(2.95)	16	---	13.5	31	240	107	3.30	4.1	2.90	
17	---	(15.15)	30	240		117	2.60	3.0	(3.00)	17	---	13.2	31	240	111	2.70	3.8	3.05	
18	---	(14.3)	30	230					(3.00)	18	12.1	31	230	---	---	4.0		3.20	
19	---	(12.9)	31	<230					2.9	19	9.5	31	220					3.20	
20	---	>12.95	30	<240					(3.05)	20	8.4	31	(240)					3.05	
21	---	(11.4)	31	225					(2.95)	21	8.0	31	240					3.20	
22	---	>10.0	31	220					(2.95)	22	8.1	31	225					3.10	
23	---	8.7	31	240					(2.80)	23	6.8	31	(245)					2.90	

Time: 135.0°E.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14								January 1960										
Time	Boulder, Colorado (40.0°N, 105.3°W)	foF2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2



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Table 19

Baquio, P. I. (16.4°N, 120.6°E)								January 1960	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	9.8	20	260			2.0		2.95	
01	9.4	30	250					3.02	
02	7.95	30	240					3.10	
03	6.5	30	240					3.10	
04	5.0	30	260					2.95	
05	4.3	31	260					2.95	
06	4.3	31	290					2.80	
07	8.2	31	290	<145	2,30			2.95	
08	12.0	31	265	<121	3,00			2.92	
09	13.5	31	250	121	(3.45)	3.6		2.80	
10	12.8	30	(240)	---	119	(3.78)	4.1	2.48	
11	---	>12.25	30	(235)	121	(3.95)	4.3	2.35	
12	---	>12.0	31	(230)	119	(3.95)	5.0	(2.30)	
13	---	12.2	30	240	(120)	(3.92)	4.5	2.30	
14	---	>12.5	29	<250	119	(3.80)	4.6	2.40	
15	---	(13.5)	29	250	119	3.62	4.0	(2.50)	
16	---	(13.4)	30	265	119	3.25	3.6	(2.55)	
17	---	(12.9)	31	280	121	2.50	3.1	(2.68)	
18	---	(12.15)	30	285				2.8	(2.75)
19	---	(12.5)	31	315				2.0	(2.70)
20	---	>12.6	24	310				2.5	(2.70)
21	---	>12.0	27	270				2.3	(2.90)
22	---	11.4	27	250				2.9	(2.90)
23	---	(10.2)	27	255				2.4	(2.82)

Time: 120.0°E.  
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 21

Boulder, Colorado (40.0°N, 105.3°W)								December 1959	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	3.45	24	290			2.2		2.70	
01	3.4	25	290			2.5		2.75	
02	3.5	27	210			2.9		2.80	
03	3.1	26	290			3.3		2.75	
04	3.3	21	290			2.8		2.75	
05	3.2	21	<290			2.8		2.75	
06	3.1	22	<290			3.1		2.72	
07	4.5	24	260	---	---	3.8		2.90	
08	7.7	22	230	<117	2,20	2.4		3.25	
09	9.25	26	225	(117)	2,70	3.0		3.20	
10	11.05	20	225	<115	3,00	4.4		3.10	
11	12.2	27	225	<110	3,20	3.4		3.10	
12	12.7	29	225	<115	3,30			3.05	
13	12.4	28	225	115	3.22			3.00	
14	12.1	29	225	<110	3,00			3.00	
15	11.6	29	230	<121	2,70	4.6		3.05	
16	11.0	30	230	<132	2,12	4.6		3.05	
17	10.0	29	220	---	---	3.5		3.10	
18	7.9	29	220			2.7		3.10	
19	6.4	28	220					3.20	
20	4.4	29	225					3.20	
21	3.7	29	250					3.00	
22	3.2	28	<270					2.92	
23	3.1	27	<285					2.75	

Time: 105.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 23

Grand Bahama I. (26.6°N, 70.2°W)								December 1959	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	4.3	30	260					2.90	
01	4.4	27	270					3.00	
02	4.45	23	260					3.00	
03	4.0	31	270					2.70	
04	3.95	30	295					2.70	
05	4.0	30	295					2.80	
06	4.2	27	270					2.85	
07	6.5	30	245	<163	2,00			3.15	
08	9.7	31	230	<114	2,70			3.20	
09	11.3	31	230	110	3,12	3.1		3.20	
10	12.1	31	225	109	3,40	3.5		3.12	
11	12.0	30	220	109	3,60	3.8		3.10	
12	11.9	31	220	(110)	3,70	3.7		3.00	
13	11.6	31	225	<113	3,62	3.6		2.95	
14	11.7	31	230	111	3,50			2.95	
15	11.7	31	230	112	3,30			3.00	
16	(11.4)	31	235	<119	2,85	2.9	(3.02)		
17	(10.5)	31	230	(134)	2,20	2.7		3.10	
18	>9.0	31	220			3.0		3.00	
19	7.4	31	220					3.00	
20	6.5	31	240					3.00	
21	5.7	31	245					3.00	
22	4.95	30	245					3.00	
23	4.45	30	245					3.00	

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 20

Reykjavik, Iceland (64.1°N, 21.0°W)								December 1959	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			(3.5)	3	355			3.7	----
01			>3.7	5	365			3.2	----
02			(4.5)	2	<370			3.5	----
03			>3.55	4	(360)			3.8	----
04			>3.65	4	(360)			3.0	----
05			(3.9)	3	330			2.7	----
06			>4.0	10	300			----	----
07			(4.0)	11	300			2.80	----
08			3.5	15	280			2.80	----
09			(4.3)	21	290			2.95	----
10			6.2	23	260			3.10	----
11			7.8	25	240			3.15	----
12			8.7	25	250			3.20	----
13			>9.1	24	240			3.10	----
14			>7.0	21	230			3.0	(3.10)
15			(6.5)	12	235			3.0	(3.00)
16			4.45	10	250			----	----
17			>4.7	5	230			2.8	----
18			(4.5)	7	300			3.5	(2.90)
19			>3.7	5	<360			3.6	----
20			(4.2)	6	320			3.4	----
21			(4.0)	3	<345			3.7	----
22			>3.65	4	360			4.3	----
23			(3.5)	1	(360)			4.2	----

Time: 15.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 21

White Sands, New Mexico (32.3°N, 106.5°W)								December 1959	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			3.6	27	<340			3.1	2.65
01			3.6	27	<340			2.60	----
02			3.5	27	<335			2.62	----
03			3.5	28	(330)			2.62	----
04			3.4	28	<340			2.60	----
05			3.4	23	<360			2.55	----
06			3.5	22	<335			2.70	----
07			5.6	30	280	---	---	2.85	----
08			8.8	30	265	(141)	(2,50)	3.05	----
09			10.55	30	260	131	3,00	3.00	----
10			11.6	30	260	(129)	3,35	3.5	2.90
11			12.45	28	250	(131)	---	3.4	2.95
12			12.3	29	<260	(129)	3,50	3.8	2.80
13			12.1	29	255	(127)	3,60	2.80	----
14			11.6	30	260	(131)	3,40	2.75	----
15			11.6	30	225	101	(3,60)	4.4	2.60
16			10.95	28	260	109	2,85	2.9	2.80
17			10.05	28	255	---	---	2.4	2.85
18			8.2	29	250			2.0	2.92
19			6.55	28	265			>2.8	2.95
20			4.8	30	<270			3.00	----
21			3.8	27	<300			3.0	2.85
22			3.5	27	<320			2.6	2.70
23			3.55	26	<355			3.2	2.60

Time: 105.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 23

Concepcion, Chile (36.6°S, 73.0°W)								December 1959	
Time	h'F2	foF2-Count	h'F	foF1	h'E</				

Table 25

Time	h°F2	foF2—Count	h°F	foFl	h°E	foE	foEs	(M3000)F2
00	4.9	20	265					2.90
01	4.8	28	265					2.90
02	4.75	30	260					2.95
03	4.4	29	250					2.90
04	3.95	28	<265					2.75
05	3.8	27	<265					2.75
06	4.0	28	270					2.85
07	7.6	30	240	(130)	2,20			3.25
08	10.5	29	235		111	2.90		3.25
09	12.0	29	230		109	3.20		3.20
10	12.55	28	225		109	3.50	3.6	3.15
11	12.6	29	220		109	3.60	3.7	3.05
12	12.2	29	220		108	3.70	3.7	3.00
13	12.3	29	230		110	3.65	3.8	2.95
14	12.1	29	230	---	111	3.50	3.6	2.95
15	11.9	30	<240		111	3.25	3.6	3.00
16	(11.4)	30	<240		115	2.80	3.0	(3.00)
17	(10.85)	30	225	(123)	2.10	2.2		(3.05)
18	>9.0	29	215					(3.10)
19	7.15	30	220					3.05
20	6.75	30	240					3.00
21	6.05	28	240					3.05
22	5.6	30	250					2.95
23	5.05	30	250					2.90

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 27

Time	h°F2	foF2—Count	h°F	foFl	h°E	foE	foEs	(M3000)F2
00	>10.95	24	230					3.30
01	7.65	22	210			1.6		3.30
02	5.1	24	210					3.12
03	4.35	24	230			1.8		2.95
04	3.65	24	<250			2.0		2.90
05	3.55	24	290			2.0		2.72
06	7.0	25	260	(129)	2,05	2.2		3.10
07	10.2	26	240		113	2.88	3.0	3.10
08	12.5	27	230		111	3.40	4.0	3.05
09	13.75	28	225		111	3.80	4.0	3.00
10	14.2	28	220		111	4.00	4.5	2.90
11	14.4	28	(220)		111	4.05	4.5	2.80
12	15.25	28	(220)		111	4.10	4.4	2.75
13	15.5	29	<225		111	4.00	4.6	2.75
14	15.45	28	220		111	3.88	4.5	2.75
15	15.1	29	(235)		111	3.50	4.7	2.75
16	15.5	30	<250		111	3.05	4.6	2.75
17	15.8	29	255	<115		2.45		2.75
18	16.8	29	260					4.0
19	17.5	27	265					3.1 (2.00)
20	17.0	25	235					2.5
21	16.1	27	215					3.05
22	(13.5)	26	225					2.95
23	>13.0	25	235					(3.20)

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 29

Time	h°F2	foF2—Count	h°F	foFl	h°E	foE	foEs	July (M3000)F2
00	8.6	30	240					2.85
01	8.1	28	265			1.9		2.85
02	8.0	28	255					3.06
03	6.8	29	245			2.0		3.00
04	6.15	20	250			2.0		2.95
05	5.75	30	260			2.2		2.88
06	6.3	30	270	<127	1,85	2.6		2.95
07	7.8	30	<250		109	2.80	3.4	3.15
08	8.7	29	230		109	3.35	3.5	3.00
09	9.15	38	220	---	111	3.75	4.2	2.62
10	(385)	10.0	29	210	---	111	4.00	4.3
11	(390)	10.8	38	210	5.6	110	4.10	4.4
12	435	11.8	20	<215	5.8	111	4.20	4.4
13	410	12.45	30	210	5.9	111	4.15	4.4
14	395	12.95	30	(220)	5.6	111	4.00	4.6
15	405	13.15	30	(235)	5.9	109	3.80	4.4
16	(395)	13.0	30	<240	---	111	3.40	4.5
17	(340)	12.7	30	250		111	2.80	4.0
18	11.85	30	270	---	(2.00)	3.3		2.75
19	10.95	30	290			3.4		2.65
20	10.65	28	310			3.0		2.65
21	11.05	28	295			2.5		2.70
22	11.2	29	270			2.4		2.95
23	10.5	31	250			2.3		3.10

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 26

Time	h°F2	foF2—Count	h°F	foFl	h°E	foE	foEs	November (M3000)F2
00			10.75	30	310			2.70
01			10.7	28	290			2.80
02			9.8	28	275			2.80
03			9.15	28	250			2.75
04			8.6	27	270			2.65
05			9.15	23	240	121	(2.15)	2.85
06			9.9	29	230	109	2.80	3.2
07			10.3	27	230	103	3.30	3.7
08			11.05	28	220	104	3.60	4.0
09			---	11.7	29	220	107	3.90
10			12.5	29	(215)	109	4.00	2.75
11			(350)	13.2	29	(220)	109	(4.10)
12			340	13.45	30	<225	109	(4.10)
13			(320)	13.7	29	(230)	109	4.02
14			(345)	13.4	30	(230)	109	(3.95)
15			330	13.15	30	<230	109	3.70
16			---	12.6	30	(230)	103	3.35
17			<320	12.4	30	240	109	2.05
18			---	12.0	30	260	(119) (2.20)	3.4
19			11.25	30	290			2.75
20			(10.4)	30	310			3.3 (2.60)
21			>10.0	29	330			3.4
22			10.7	29	340			3.3
23			>10.55	28	320			2.1

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 28

Time	h°F2	foF2—Count	h°F	foFl	h°E	foE	foEs	July (M3000)F2
00			5.45	30				2.50
01			5.1	29				2.50
02			5.0	29				2.52
03			4.7	29				2.50
04			4.5	27				2.75
05			4.5	29				2.60
06			5.2	29				2.60
07			5.8	30				3.3
08			6.1	31				2.50
09			6.55	30				4.2
10			6.8	27				2.50
11			6.9	25				4.4
12			6.8	27				2.50
13			6.9	27				4.4
14			7.1	20	230	5.0	3.2	2.6
15			430	7.1	23	230	5.2	105
16			445	7.3	23	220	5.3	105
17			450	7.4	23	220	5.4	105
18			455	7.2	24	225	5.5	105
19			460	7.0	22	225	5.5	105 (3.6)
20			450	7.0	23	220	5.4	105 (3.6)
21			460	6.8	22	220	5.3	105 (3.5)
22			440	6.8	22	225	5.2	105
23			410	6.8	22	230	5.0	110
			(395)	6.6	23	235	4.7	110
			---	6.6	23	250	4.3	110
			19	6.5	21	250	4.3	2.9
			20	6.6	20	265	4.3	2.7
			21	6.5	19	275	4.3	2.4
			22	6.5	19	300	4.3	3.0
			23	6.2	19	315	4.3	2.55

Time: 15.0°E.

Sweep: 0.65 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 31

Time	Boulder, Colorado (40.0°N, 105.3°W)							June 1959 (M3000)F2
	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	
00	5.9	30			3.6	2.60		
01	5.7	30			3.1	2.55		
02	5.5	29			3.4	2.55		
03	5.0	29			3.6	2.55		
04	5.0	28			2.8	2.60		
05	5.2	28			2.1	2.70		
06	5.8	29			2.9	2.75		
07	6.6	29			4.0	2.60		
08	7.1	29			4.3	2.55		
09	7.1	29			4.4	2.50		
10	7.1	29			4.9	2.52		
11	7.4	29			4.6	2.50		
12	7.75	28		>4.4		2.50		
13	7.3	30			4.5	2.50		
14	7.5	29			4.3	2.55		
15	7.0	24			4.2	2.55		
16	7.0	25			4.0	2.65		
17	7.0	26			3.5	2.70		
18	7.0	27			3.6	2.72		
19	7.1	27			3.6	2.85		
20	6.0	28			3.6	2.80		
21	6.7	28			4.0	2.70		
22	6.1	29			3.7	2.65		
23	5.95	30			3.8	2.60		

Time: 105.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 33

Time	Bunia, Belgian Congo (1.5°N, 30.2°E)							June 1959 (M3000)F2
	h'F2	foF2-Count	h'F1	foF1	h'E	foE	foEs	
00	255	---	2			3.9	----	
01	250	(8.6)	6					
02	240	7.4	12			3.6	(2.80)	
03	230	6.6	16			4.0	2.87	
04	280	7.7	14	---	---	3.8	2.82	
05	260	11.4	22	250	---	115	2.8	2.86
06	270	13.0	26	240	---	110	3.4	2.85
07	(300)	13.6	26	235	---	110	3.7	2.70
08	(345)	13.6	26	235	---	110	4.0	2.54
09	395	13.6	26	250	---	110	4.0	2.38
10	430	13.6	25	250	---	110	4.1	2.28
11	450	13.4	23	250	6.4	110	4.0	2.10
12	450	13.3	23	250	6.0	110	4.0	2.03
13	450	13.3	22	245	6.0	110	3.7	2.13
14	(450)	13.4	26	240	---	115	3.4	2.20
15	---	13.4	24	260	---	120	2.7	2.12
16	---	13.7	25	290	---	---	3.3	2.24
17	325	14.0	19			4.5	2.27	
18	325	---	1			2.9	----	
19	200	---	0			2.5	----	
20	280	---	1			2.5	----	
21	275	---	0			3.0	----	
22	270	---	0			3.0	----	
23	270	---	1			4.0	----	

Time: 0.0°.  
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 35

Time	Elizabethtown, Belgian Congo (11.7°S, 27.5°E)							June 1959 (M3000)F2
	h'F2	foF2-Count	h'F1	foF1	h'E	foE	foEs	
00	250	1.4	26			1.5	2.66	
01	250	3.8	27			1.4	2.60	
02	255	3.0	27			1.6	2.84	
03	270	2.7	27			1.6	2.70	
04	230	4.0	28				2.51	
05	250	8.5	28	250	---	130	2.2	2.90
06	250	10.9	29	245	---	110	3.0	2.96
07	260	11.8	30	240	---	110	3.5	2.90
08	280	11.9	28	240	---	110	3.7	2.00
09	290	11.5	29	250	---	110	4.0	2.65
10	310	11.2	30	250	---	110	4.0	2.54
11	345	11.0	29	250	6.0	110	4.0	4.4
12	350	11.0	29	250	---	110	3.9	2.45
13	350	10.9	30	250	5.6	110	3.6	4.8
14	340	11.0	30	250	---	110	3.2	2.43
15	295	11.4	30	260	---	120	2.6	2.47
16	250	11.6	28			3.6	2.56	
17	235	10.6	28			3.5	2.93	
18	230	9.0	20			3.0	<2.91	
19	240	7.4	16			3.0	2.72	
20	240	8.1	19			2.6	2.78	
21	240	6.6	21			2.4	2.78	
22	240	6.0	19			2.2	2.78	
23	240	5.4	23			1.6	2.65	

Time: 0.0°.  
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 36

Time	Brisbane, Australia (27.5°S, 152.9°E)							June 1959 (M3000)F2
	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	
00			4.8	24	255			2.75
01			4.8	23	265			2.75
02			4.7	23	270			2.65
03			4.8	22	265			2.75
04			4.6	23	260			2.75
05			4.5	25	250			2.80
06			4.8	25	<250			2.85
07			7.7	25	230			2.20
08			10.2	23	230			2.80
09			11.7	23	230			3.25
10			11.8	22	225			3.10
11			11.1	23	225			3.70
12			11.0	24	220			3.70
13			10.8	24	225			3.60
14			10.8	24	225			4.4
15			10.9	25	230			4.7
16			10.7	27	230			2.90
17			9.8	27	230			4.4
18			8.4	26	230			2.95
19			7.0	26	245			3.6
20			6.4	26	255			2.85
21			6.0	25	250			2.80
22			5.5	23	250			2.85
23			5.0	22	250			2.80

Time: 150.0°E.  
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 37

Uppsala, Sweden (59.3°N, 17.0°E)							May 1959	
Time	h°F2	foF2-Count	h°F	foF1	h°E	foE	fEs	(M3000)F2
00	6.8	31	315			2.7	2.40	
01	6.2	30	320	-	---	2.7	2.35	
02	6.0	30	315		---	0.75	2.3	
03	400	5.0	31	315	2.7	110	1.30	2.5
04	400	6.0	31	205	3.5	105	1.75	2.7
05	410	6.3	31	260	4.2	110	2.30	3.3
06	400	6.3	31	245	4.6	105	2.75	4.0
07	410	7.4	31	240	5.0	105	3.15	4.0
08	410	8.0	31	240	5.3	105	3.35	4.0
09	370	8.3	31	230	5.5	105	3.50	4.0
10	420	8.4	31	230	5.6	105	3.60	5.1
11	415	8.5	31	230	5.7	105	3.70	4.7
12	410	8.4	31	225	5.0	105	3.70	4.7
13	400	8.6	31	230	5.3	105	3.70	4.7
14	390	8.4	31	230	5.7	105	3.60	4.0
15	375	8.3	31	240	5.6	105	3.50	2.60
16	365	8.3	31	240	5.2	105	3.30	4.0
17	300	8.4	31	245	5.1	110	3.05	3.4
18	(280)	0.3	30	255	(4.2)	110	2.60	3.0
19	---	8.4	31	260	---	110	2.15	3.1
20	---	8.2	31	275	---	110	1.50	2.7
21	8.0	31	260			115	1.00	2.4
22	7.3	31	280			---	0.75	1.2
23	6.9	31	295			---	2.5	2.40

Time: 15.0°E.

Sweep: 0.3 Mc to 20.0 Mc in 3 minutes, automatic operation.

Occasionally, 1.1 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 39

Boulder, Colorado (40.0°N, 105.3°W)							May 1959	
Time	h°F2	foF2-Count	h°F	foF1	h°E	foE	fEs	(M3000)F2
00	6.0	31	300					2.52
01	5.8	30	300			2.5		2.52
02	5.5	30	300			2.6		2.55
03	5.2	29	(310)			2.7		2.45
04	4.9	29	310			2.8		2.50
05	5.4	29	205	<111	(1.95)	3.1		2.65
06	(470)	6.2	29	240	4.1	(105)	2.50	2.75
07	515	6.7	29	230	4.5	101	3.10	3.0
08	485	7.3	30	210	4.9	101	3.40	3.0
09	460	7.4	29	210	5.3	101	3.60	4.0
10	455	8.0	29	200	5.4	101	3.85	4.3
11	440	8.0	29	(210)	5.7	101	(3.95)	4.3
12	425	8.2	30	<215	5.0	101	(4.00)	4.3
13	420	0.5	31	215	5.6	101	3.95	4.0
14	420	8.2	31	220	5.5	101	3.00	3.9
15	415	0.0	30	220	5.4	101	3.70	4.0
16	405	0.0	29	(225)	(5.2)	101	3.40	3.7
17	365	7.0	29	(230)	4.0	101	3.05	3.7
18	---	7.5	31	250	<107	2.45	2.9	2.70
19	---	7.5	31	<255	---	---	3.0	2.75
20	7.0	31	250			3.0		2.65
21	6.8	31	260			2.8		2.60
22	6.5	29	200					2.60
23	6.1	31	300					2.55

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 41

Boulder, Colorado (40.0°N, 105.3°W)							April 1959	
Time	h°F2	foF2-Count	h°F	foF1	h°E	foE	fEs	(M3000)F2
00	6.3	29	315					2.50
01	6.2	29	315					2.45
02	5.8	29	315			2.4		2.45
03	5.8	29	300			2.2		2.50
04	5.7	29	310			2.3		2.50
05	5.5	27	<310		---	3.6		2.55
06	6.5	26	270	(121)	(2.22)			2.80
07	8.0	26	250	---	111	2.80	3.0	2.80
08	---	9.05	26	240	---	107	3.22	2.78
09	450	9.65	28	230	5.1	107	3.50	3.8
10	510	10.2	30	220	5.2	107	3.75	>3.8
11	415	10.8	29	220	5.7	107	3.90	4.0
12	425	11.1	30	225	5.8	107	4.00	2.60
13	405	11.15	30	225	6.0	107	3.92	2.60
14	440	11.1	28	230	5.6	105	3.80	2.55
15	(450)	10.9	27	230	5.6	107	3.60	2.55
16	---	10.6	27	235	---	105	3.30	2.60
17	---	10.2	29	250	---	107	2.90	2.65
18	10.2	29	255	<122	2.28			2.75
19	9.4	29	250	---	---			2.75
20	8.3	30	250					2.65
21	7.45	30	265					2.60
22	6.8	30	295					2.52
23	6.6	30	305					2.50

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 38

Monte Capellino, Italy (44.6°N, 9.0°E)							May 1959	
Time	h°F2	foF2-Count	h°F	foF1	h°E	foE	fEs	(M3000)F2
00	8.6	28	310					2.31
01	8.6	28	325					2.30
02	8.4	28	320					2.28
03	8.0	28	310					1.7
04	7.0	29	305					1.4
05	7.6	28	295					2.39
06	8.2	26	260					2.3
07	8.6	28	240					2.55
08	8.6	28	235					2.53
09	8.6	30	225					2.63
10	8.9	30	220					2.51
11	10.2	30	220					2.41
12	10.3	31	220					2.40
13	10.6	31	225					2.39
14	10.3	31	230					2.38
15	10.6	31	235					2.37
16	10.2	31	240					2.36
17	10.4	31	240					2.34
18	10.2	31	240					2.33
19	10.2	31	240					2.32
20	10.6	31	240					2.31
21	9.5	29	275					2.40
22	9.0	29	260					1.3
23	8.8	28	300					2.35

Time: 15.0°E.

Sweep: 1.0 Mc to 20.0 Mc in 5 minutes, automatic operation.

Table 40

Formosa, China (25.0°N, 121.0°E)							May 1959	
Time	h°F2	foF2-Count	h°F	foF1	h°E	foE	fEs	(M3000)F2
00	16.0	28	280					2.80
01	14.1	27	260					2.90
02	12.7	30	240					2.80
03	10.7	26	250					2.75
04	8.6	25	260					2.70
05	8.4	28	260					1.9
06	9.4	30	250					2.70
07	10.0	30	240					2.90
08	11.2	30	240					2.90
09	11.0	30	(240)					2.65
10	12.7	31	240					2.60
11	13.7	31	<250					2.55
12	(400)	14.6	30	(240)				2.55
13	(400)	15.6	31	(260)				2.55
14	21.0	16.3	31	<260				2.60
15	(380)	16.5	31	(240)				2.60
16	16.7	31	(240)					2.60
17	17.1	31	260					2.60
18	16.5	31	260					2.65
19	15.8	31	300					2.60
20	16.2	31	320					2.50
21	16.4	26	310					2.55
22	>16.4	28	300					2.60
23	16.9	27	300					2.70

Time: 120.0°E.

Sweep: 1.1 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 42

Budapest, Hungary (47.4°N, 19.2°E)							March 1959	
Time	h°F2	foF2-Count	h°F	foF1	h°E	foE	fEs	(M3000)F2
00	6.0	31	340					
01	>5.9	31	315					
02	5.7	31	310					
03	5.5	30	310					
04	5.1	31	310					
05	5.9	31	280					
06	>(7.2)	30	250					

Table 43

Boulder, Colorado (40.0°N, 105.3°W)							March 1959		
Time	h°F2	foF2—Count	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00	6.05	30	295					2.60	
01	5.8	30	305					2.55	
02	5.8	31	300					2.60	
03	5.7	31	300					2.60	
04	5.5	30	<300					2.58	
05	5.3	31	300					2.60	
06	5.7	31	290	---	---	2.6		2.70	
07	7.9	31	250	<119	2.40		3.00		
08	9.0	31	235	---	111	2.90		3.05	
09	11.2	29	230	---	109	3.25		2.95	
10	12.2	29	220	---	107	3.55		2.85	
11	12.9	29	220	---	106	3.70		2.80	
12	(340)	13.0	29	220	---	105	3.80	2.75	
13	13.2	30	220	---	105	3.00		2.70	
14	(415)	13.0	30	230	---	109	3.70	2.70	
15	12.7	28	235	---	109	3.50		2.72	
16	12.6	30	240	---	111	3.15		2.75	
17	11.85	30	240		115	2.65	2.7	2.82	
18	11.2	30	240	<150	(2.00)			2.90	
19	9.8	30	230					2.85	
20	8.75	30	230					2.80	
21	7.4	31	245					2.80	
22	6.5	31	255					2.80	
23	6.2	31	270					2.70	

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 45

Boulder, Colorado (40.0°N, 105.3°W)							January 1959		
Time	h°F2	foF2—Count	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00	4.05	30	260					2.90	
01	3.8	29	<280					2.75	
02	3.9	29	(270)					2.80	
03	3.05	30	(260)					2.75	
04	3.8	30	260					2.80	
05	3.75	30	<280					2.75	
06	3.5	30	<270					2.80	
07	5.0	29	260	---	---	3.8		2.80	
08	8.6	30	225	(119)	2.30			3.20	
09	10.7	29	220	109	2.95	3.3		3.15	
10	12.9	28	220	109	3.30			3.00	
11	13.4	29	225	105	3.55			3.05	
12	---	13.6	31	220	109	3.60		2.95	
13	---	13.0	31	220	---	107	3.50	2.85	
14	12.8	31	225	109	3.40			2.80	
15	12.8	31	230	109	3.10			2.80	
16	11.9	30	225	<115	2.50			2.90	
17	11.6	31	225	<139	1.90			2.68	
18	10.0	30	220					2.90	
19	8.5	31	215					2.90	
20	7.0	31	225					2.90	
21	5.9	31	235					2.95	
22	5.2	31	245					3.00	
23	4.5	31	250					2.95	

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 47

Cape Canaveral, Florida (28.4°N, 80.6°W)							December 1958		
Time	h°F2	foF2—Count	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00	5.7	29	<270					2.80	
01	5.3	31	260					2.90	
02	4.9	30	250					2.90	
03	4.35	30	260					2.80	
04	4.3	29	<285					2.60	
05	4.2	30	(300)					2.60	
06	4.2	30	<290					2.75	
07	6.25	30	260	---	---			2.95	
08	10.3	29	240	(125)	2.65			3.20	
09	12.1	28	230	<116	3.20			3.12	
10	12.75	28	230	111	3.50	3.7		3.00	
11	12.5	30	220	111	3.75			2.85	
12	---	12.5	30	230	112	3.80	4.0	2.75	
13	---	12.5	30	230	115	3.80	3.9	2.70	
14	---	12.15	30	230	117	3.70		2.65	
15	12.0	29	235	<118	3.45	3.6		2.65	
16	11.8	29	240	119	2.95	3.2		2.70	
17	11.5	29	240	(127)	2.20	3.1		2.75	
18	10.5	29	230			3.2		2.75	
19	8.7	29	240			3.1		2.75	
20	8.0	30	260					2.75	
21	7.4	30	250					2.88	
22	6.7	30	250					2.88	
23	6.35	30	260					2.85	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 44

Boulder, Colorado (40.0°N, 105.3°W)							February 1959		
Time	h°F2	foF2—Count	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00			4.9	28	290			2.70	
01			5.05	28	300			2.62	
02			5.0	28	290			2.70	
03			4.85	28	280			2.68	
04			4.65	28	290			2.60	
05			4.55	28	295			2.60	
06			4.5	26	285			2.68	
07			5.9	27	250	<123	(1.88)	3.2	
08			9.1	27	230	(115)	2.50	3.15	
09			10.8	27	230	109	3.00	3.10	
10			11.9	27	220	---	3.30	3.00	
11			12.4	25	220	---	3.50	2.95	
12			13.2	27	220	108	3.60	2.90	
13			13.2	27	220	109	3.60	2.85	
14			13.05	26	225	(109)	3.50	2.85	
15			13.0	27	230	(111)	3.25	2.85	
16			12.6	27	230	<115	2.85	2.90	
17			12.05	28	230	<118	2.20	1.90	
18			11.3	27	225			1.90	
19			9.6	27	225			2.95	
20			8.3	27	225			2.95	
21			6.6	27	230			2.95	
22			5.55	28	240			2.90	
23			4.9	28	<270			2.75	

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 46

Natal, Brazil (5.3°S, 35.1°W)							January 1959		
Time	h°F2	foF2—Count	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00		(0,1)	4	320				----	
01		(9,6)	3	295				2.7	
02		(3,65)	4	265				----	
03		(7,6)	5	255				(2.80)	
04		(7,5)	9	240				(3.00)	
05		7.1	14	230				3.00	
06		7.1	13	235				2.90	
07		9.6	20	250	121	2.60	3.3	3.00	
08		11.2	21	235	109	3.35	4.4	2.80	
09		12.0	21	225	109	3.60	5.9	2.50	
10		12.2	19	220	107	(4.10)	8.8	2.30	
11		12.25	20	210	107	(4.30)	9.0	2.18	
12		11.65	20	210	---	---	9.2	2.10	
13		11.4	20	205	---	---	9.0	2.05	
14		11.1	19	205	---	---	(4.20)	9.0	
15		10.7	20	210	---	(107)	(4.08)	9.0	
16		10.6	21	225	109	(3.80)	8.1	2.05	
17		10.5	21	245	109	(3.30)	5.9	2.05	
18		10.4	22	270	115	(2.55)	4.7	2.10	
19		9.4	20	340				2.10	
20		(8,0)	15	475				(1.95)	
21		(8,15)	6	(480)				(2.05)	
22		(8,4)	5	(360)				(2.25)	
23		(8,05)	2	(340)				----	

Time: 30.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 32.4 seconds.

Table 48

Byrd Station (80.0°S, 120.0°W)							December 1958		
Time	h°F2	foF2—Count	h°F	foF1	h°E	foE	foEs	(M3000)F2	
00	490	5.8	19	285	3.8	<113	3.00	2.32	
01	510	5.7	23	270	4.0	121	3.00	2.30	
02	515	5.5	23	275	4.0	111	2.95	2.32	
03	555	5.6	20	275	4.1	115	2.95	3.2	
04	555	5.5	24	265	4.4	110	2.95	2.35	
05	570	5.5	24	270	4.3	109	3.00	3.0	
06	570	5.7	23	(255)	4.7	108	3.05	2.35	
07	(550)	5.8							

Table 49

Cape Canaveral, Florida (28.4°N, 80.6°W)	November 1958							
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MHz) F2
00	6.1	30	260					2.90
01	5.8	30	260					2.85
02	5.15	30	<270					2.85
03	5.0	29	270					2.80
04	4.6	29	<275					2.75
05	4.5	30	<300					2.70
06	4.85	30	(280)					2.70
07	6.1	29	250	---	---			3.05
08	11.8	29	235	<127	2.82	3.0		3.15
09	13.5	29	230	(119)	3.30	3.4		3.10
10	13.9	29	230	<119	3.60			3.00
11	13.7	29	225	<117	3.80			2.90
12	13.6	29	220	(117)	3.90	3.9		2.80
13	13.4	29	230	<119	3.00	4.0		2.75
14	13.2	30	230	(115)	3.70	3.8		2.70
15	12.9	30	235	<119	3.40	3.7		2.70
16	12.65	30	240	<121	3.00	3.2		2.70
17	12.4	30	240	<127	----	2.4		2.75
18	11.5	30	235					2.80
19	9.95	30	<245					2.80
20	9.1	30	<245					2.85
21	0.25	30	250					2.05
22	7.45	30	250					2.90
23	6.75	30	<260					2.90

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 50

Cape Canaveral, Florida (28.4°N, 80.6°W)	October 1958							
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MHz) F2
00			7.4	29	210			2.70
01			7.1	29	260			2.65
02			6.9	29	230			2.65
03			6.5	29	275			2.65
04			5.9	29	(230)			2.55
05			5.8	29	<295			2.60
06			6.1	29	280			2.70
07			9.5	29	240	---	---	3.10
08			12.1	27	235	115	3.05	3.00
09			13.3	29	230	111	3.50	3.5
10			14.0	30	220	109	1.70	2.85
11	---		14.05	30	220	111	3.45	2.70
12	---		13.95	30	220	111	4.00	2.65
13	---		13.6	31	230	111	3.90	2.60
14	---		13.4	29	230	<112	3.95	2.55
15	---		13.3	29	235	113	3.70	3.8
16	---		13.0	29	240	115	3.28	3.5
17	---		12.8	29	245	<121	2.58	2.9
18	---		12.1	29	240			2.70
19	---		10.3	29	240			2.65
20	---		9.5	29	265			2.65
21	---		0.95	29	270			2.70
22	---		0.3	29	270			2.65
23	---		0.1	29	270			2.70

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 51

Natal, Brazil (30.3°S, 35.1°W)	October 1958							
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MHz) F2
00	>10.8	9	245			2.7	(2.70)	
01	>9.3	11	255			3.1	(2.70)	
02	>9.6	12	260			3.4	(2.70)	
03	>9.0	20	250			3.3	2.00	
04	9.0	19	240			3.4	2.00	
05	0.2	21	230			3.9	3.00	
06	8.35	24	260	---	---	1.0	2.95	
07	11.35	28	250	117	2.80	3.2	3.00	
08	13.2	28	240	111	3.40	3.8	2.60	
09	14.4	29	230	109	3.65	6.5	2.35	
10	15.0	28	220	109	(1.10)	9.0	2.35	
11	15.0	28	215	(107)	(3.20)	9.0	2.20	
12	14.7	27	210	109	(4.25)	9.0	2.20	
13	14.15	26	210	109	(4.20)	9.0	2.20	
14	14.2	26	210	109	4.10	9.0	2.20	
15	14.4	20	220	107	3.95	0.9	2.20	
16	14.55	23	240	109	3.58	8.5	2.20	
17	14.2	28	260	111	3.00	6.0	2.10	
18	>13.0	27	300	---	2.00	4.5	(2.00)	
19	(9.45)	26	435				(1.90)	
20	>9.0	7	(460)				----	
21	(9.5)	6	(355)				----	
22	>9.0	7	(305)				----	
23	(11.0)	5	275				----	

Time: 30.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 32.1 seconds.

Table 52

Grahamstown, Union of S. Africa (33.3°S, 26.5°E)	September 1958							
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MHz) F2
00	(5.0)	23						2.9
01	(5.4)	24						(2.9)
02	5.0	23						2.9
03	4.9	23						2.0
04	4.8	23						2.9
05	4.6	22						2.9
06	(6.1)	23						(2.95)
07	(9.3)	7						(3.4)
08	(11.7)	17						(3.4)
09	(13.0)	9	240					(3.3)
10	(13.0)	6	245					(3.3)
11	(13.5)	3	240					----
12	----		0 <245					----
13	(13.5)	3	250					----
14	(12.0)	3	250					----
15	(13.0)	3	250					----
16	(12.0)	10	255					(2.9)
17	(11.7)	11						(2.95)
18	(11.5)	16						(3.0)
19	(11.1)	12						(3.15)
20	(10.0)	3						----
21	(8.0)	5						----
22	(8.0)	16						(3.3)
23	(6.7)	23						(3.1)

Time: 30.0°W.

Sweep: 1.5 Mc to 15.0 Mc.

Table 53

Freiburg, Germany (48.1°N, 7.6°E)	July 1958							
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MHz) F2
00	7.2	31	315			1.6	2.50	
01	6.7	30	310			1.4	2.50	
02	6.3	30	300			(1.9)	2.50	
03	6.0	30	315			1.6	2.50	
04	6.2	30	290	---		1.50	2.3	2.55
05	395	6.8	30	255	4.1	113	2.45	2.70
06	360	7.2	30	240	4.6	109	3.0	2.75
07	340	7.5	30	225	5.0	106	3.40	2.75
08	415	7.7	31	220	5.4	103	3.60	2.70
09	420	7.8	31	220	5.6	101	3.00	2.65
10	430	7.9	31	210	5.7	101	3.90	2.60
11	420	8.0	30	220	5.7	101	4.00	2.65
12	430	8.0	29	220	5.8	101	4.00	2.55
13	430	8.0	29	220	5.8	103	3.95	2.55
14	410	7.0	30	225	5.8	103	3.90	2.65
15	420	7.7	30	230	5.6	103	3.70	2.65
16	395	7.8	30	235	5.3	105	3.45	2.70
17	355	7.8	29	240	4.8	107	3.10	2.75
18	---	8.0	30	260	111	2.55	3.5	2.00
19	---	8.0	30	270	129	1.60	3.2	2.50
20	---	7.9	30	270				2.65
21	---	8.0	30	260				2.60
22	---	7.8	30	300				2.55
23	7.4	31	305			1.7	2.50	

Time: 0.0°W.

Sweep: 1.25 Mc to 20.0 Mc in 3 minutes.

Table 54

Cape Canaveral, Florida (28.4°N, 80.6°W)	June 1958							
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MHz) F2
00	8.2	29	<315					2.55
01	8.0	29	<300					2.60
02	7.4	29	280					2.60
03	7.0	29	<290					2.60
04	6.9	29	<300					2.60
05	6.6	29	<295					2.60
06	6.3	29	255					2.80
07	(7.7)	29	<240	4.7	111	(3.00)	3.8	2.70
08	(4.70)	7	(25)	5.0	109	3.50	4.4	2.52
09	4.45	8.7	29	220	5.6	107	(3.80)	4.4
10	4.40	8.5	29	(220)	5.7	107	(4.00)	4.6
11	4.30</							

Table 55 Concepcion, Chile (36.6°S, 73.0°W)								June 1950
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	6.0	29	305					2.60
01	5.6	29	295					2.65
02	5.4	27	250					2.70
03	5.05	28	200					2.65
04	4.7	28	230					2.60
05	4.1	27	265					2.62
06	4.4	27	280					2.75
07	7.1	27	250	155	1.75	1.9		3.02
08	10.75	20	225	115	2.65			3.35
09	11.85	30	225	111	3.10	3.4		3.30
10	11.9	30	220	109	3.40	3.6		3.20
11	11.65	30	220	109	3.55	4.0		3.15
12	11.65	30	220	109	3.60	4.0		3.02
13	12.2	30	220	109	3.50	3.8		3.00
14	12.9	29	230	111	3.30			3.05
15	12.3	29	230	115	3.00			3.05
16	11.6	27	225	125	2.40	2.8		3.05
17	11.2	28	220	---	---	2.4		3.10
18	9.6	29	210	---	---	2.3		2.98
19	9.3	29	225	---	---	2.3		2.98
20	8.4	29	230	---	---	2.08		
21	7.0	29	235	1.0	---	2.85		
22	6.9	29	250	---	---	2.80		
23	6.4	29	290	---	---	2.50		

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 56 Cape Canaveral, Florida (29.4°N, 80.6°W)								May 1950
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			8.0	21	310			
01			7.8	21	300			
02			7.4	21	<310			
03			7.3	21	<300			
04			7.3	21	(300)			
05			7.0	21	<290			
06			7.6	21	265	---	---	4.0
07			8.2	21	240	(111)	---	3.6
08		(390)	0.6	20	(225)	---	109	4.4
09			430	>9.15	20	215	5.5	109 (3,80)
10			(460)	9.95	18	210	5.6	109
11			(445)	9.7	15	210	5.8	107 (4,00)
12			455	10.2	17	(220)	(5.8)	109 (4,20)
13			440	9.4	15	220	6.0	107 4.12
14			415	10.35	18	(220)	6.0	109 (4,00) 4.3
15			415	10.3	18	<250	5.6	109 4.00
16			(410)	10.1	18	230	5.2	109 3.70
17			(440)	9.1	21	<240	---	111 3.30
18			---	9.2	22	(250)	---	116 3.4
19			9.05	22	260			2.8
20			8.45	22	<270			2.6
21			8.1	22	<300			2.55
22			7.9	21	<320			3.1
23			8.0	21	<330			2.6

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 57 Buenos Aires, Argentina (34.5°S, 59.5°W)								May 1950
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	8.8	29	265					2.05
01	8.2	29	260					2.00
02	7.2	28	255					2.90
03	6.5	28	250					2.90
04	6.4	28	230					3.00
05	>4.7	26	225					2.50
06	4.5	27	315					2.60
07	8.6	27	260					3.00
08	11.8	29	240					3.25
09	13.5	29	235	---				3.10
10	14.0	30	230	---				3.10
11	13.6	30	235	---				2.95
12	13.5	29	230	---				2.85
13	(320)	14.4	28	230	---			2.80
14	---	15.0	30	240	---			2.85
15	---	14.8	30	245	---			2.90
16	14.4	29	245					2.90
17	14.2	31	240					3.00
18	13.1	31	235					<3.00
19	12.8	29	245					3.00
20	13.3	31	235					<3.05
21	11.4	31	235					<3.00
22	9.6	31	240					2.90
23	8.7	29	270					2.90

Time: 60.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 58 Cape Canaveral, Florida (29.4°N, 80.6°W)								April 1950
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			8.3	26	<310			(2.50)
01			8.05	24	<310			2.55
02			8.1	23	<295			2.60
03			7.8	23	(285)			2.55
04			7.65	24	<280			2.60
05			7.0	25	<280			2.60
06			7.7	24	275			2.75
07		(9.65)	24	240	(111)	2.68		(2.95)
08		(11.3)	25	225	(109)	(3.25)	3.4	2.85
09		---	12.1	26	220	---	109	3.65
10		---	12.7	25	210	---	109 (3.95)	2.65
11		---	13.0	27	220	---	107 (4.05)	2.55
12		---	13.1	27	225	---	109 (4.20)	2.55
13		(410)	13.3	27	230	(6.6)	109 (4.20)	2.52
14		(420)	13.0	26	230	(6.6)	111 (4.10)	2.50
15		---	12.9	27	230	---	110 3.92	2.55
16		---	12.1	26	<240	---	109 3.70	2.55
17		---	12.0	25	240	---	111 3.15	3.4
18		---	11.55	26	255	---	<119 (2.50)	2.7
19		(10.55)	26	250	---	---		(2.65)
20		---	>9.5	27	<260	---		(2.55)
21		(9.3)	27	<290	---			(2.55)
22		(9.0)	26	<300	---			(2.50)
23		(8.9)	26	<310	---			(2.55)

Time: 75.0°W.  
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 59 Singapore, British Malaya (1.3°N, 103.8°E)								March 1958
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	11.8	25	230	---	<1.2			2.65
01	11.2	27	250	120	<1.2			2.60
02	10.5	28	255	---	<1.1			2.65
03	10.2	26	250	120	1.00			2.85
04	9.1	29	235	125	1.10			2.95
05	8.0	28	240	125	1.15			2.95
06	7.0	27	250	130	1.45			2.80
07	10.9	30	255	135	2.70	2.9		2.90
08	12.7	31	250	145	3.45	3.9		2.60
09	14.0	30	240	110	3.90	4.1		2.30
10	14.2	29	230	110	4.15			2.05
11	14.2	28	220	110	4.40			1.85
12	>13.8	20	215	110	4.45			1.95
13	13.0	30	225	110	4.40			2.00
14	13.8	30	220	110	4.30			1.95
15	13.9	30	230	110	4.00			1.95
16	14.1	29	250	110	3.60			2.00
17	14.4	27	260	115	3.00			2.00
18	14.3	28	295	145	2.20			2.00
19	>13.3	18	390	---	---	1.0		---
20	>13.2	11	370	145	---	<1.3		---
21	>14.0	12	300	125	---	<1.5		---
22	>13.9	16	250	---	---	<1.5		---
23	>14.0	18	230	---	---	<1.3	(2.65)	---

Time: 105.0°E.  
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 60 Port Lockroy (64.0°S, 63.5°W)								March 1958
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			6.2	18	350	165	---	1.0 (2.45)
01			(6.2)	19	345	150	0.9	1.2 (2.30)
02			(5.6)	21	365	---		1.1 (2.35)
03			(5.0)	20	370	---		1.0 (2.30)
04			(5.0)	21	375	---		1.1 (2.30)
05	600	(4.9)	25	370	---	145	---	1.3 (2.25)
06	610	5.4	28	310	---	130	1.5	2.45
07		6.5	29	260	---	115	2.2	2.86
08		505	7.4	29	250	---	115	2.6 2.9
09		520	8.2	30	250	---	110	3.0 3.2
10		665	9.2	30	240	---	105	(3.2) 3.4
11		660	10.0	30	240	---	105	(3.2)

Table 61

Tucuman, Argentina (26.9°S, 65.4°W)									
Time	h°F2	foF2-Count	h°F	foF1	h'E	foE	foEs	(MHz) F2	February 1951
00	(15.1)	21	(290)					(2.77)	
01	>15.0	21	(270)					(2.90)	
02	14.0	23	240			1.9	2.94		
03	>10.6	23	(215)			1.7	2.09		
04	8.9	22	(260)			1.7	2.02		
05	7.8	25	(250)				2.01		
06	7.9	23	275			1.85	2.73		
07	>9.8	23	240		102	2.70	2.9	(3.00)	
08	>11.4	24	230		101	3.20	3.6	(3.03)	
09	12.7	23	225		101	---	4.2	2.06	
10	(13.2)	22	215		103	---		(2.77)	
11	---	21	(205)		(101)	---	4.0	(2.67)	
12	---	15	(205)		(101)	---	5.3	(2.59)	
13	(420)	16	---	6.9	---	4.9	(2.64)		
14	>14.5	16	---	7.0	---	---	---		
15	400	>14.5	11	---	7.0	---	---		
16	395	>14.1	16	<230	6.5	(103)	---	(2.62)	
17	400	>14.0	17	235	---	111	---	4.0	---
18	---	14.0	19	(255)	---	111	---	3.7	(2.53)
19	>13.6	13	290	---		2.7	---		
20	>13.9	10	(345)			2.6	---		
21	>13.0	11	(330)			2.2	---		
22	>13.4	15	(315)			---	---		
23	>13.6	16	(295)			---	---		

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 63

Port Lockroy (64.0°S, 63.5°W)									
Time	h°F2	foF2-Count	h°F	foF1	h'E	foE	foEs	(MHz) F2	February 1950
00	8.8	22	320			1.4	2.35		
01	0.4	24	325			1.4	(2.25)		
02	(8.0)	22	345	---	---	1.4	(2.30)		
03	440	7.2	22	350	145	---	1.5	(2.25)	
04	470	6.6	24	355	105	1.7	1.6	2.15	
05	470	7.0	24	305	---	105	1.9	2.0	2.25
06	>430	7.6	26	270	4.0	100	2.2	2.4	2.40
07	>440	7.8	26	255	(4.3)	100	2.7	3.0	2.50
08	>475	7.4	26	245	4.6	100	(3.1)	3.4	2.50
09	>455	7.4	25	245	4.8	100	(3.4)	4.0	2.45
10	400	7.8	25	245	5.1	100	(3.6)	4.4	2.60
11	>450	8.3	26	240	5.2	100	(3.7)	4.0	2.60
12	>460	8.1	26	235	5.3	100	(3.7)	4.2	2.65
13	440	8.1	26	240	---	100	---	4.1	2.75
14	385	8.2	26	240	---	100	3.6	4.0	2.75
15	400	8.0	26	240	---	105	3.5	2.75	
16	8.0	26	245	---	105	3.2	3.2	2.75	
17	8.1	26	250	---	105	3.1	2.75		
18	8.3	26	255	---	105	2.8	3.1	2.75	
19	8.4	26	265	---	110	2.4	2.8	2.75	
20	8.7	25	275	---	105	2.0	2.5	2.75	
21	8.8	25	300	---	105	1.6	2.60		
22	8.0	27	300	---		1.4	2.45		
23	9.0	25	315	---		1.2	2.45		

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 65

Buenos Aires, Argentina (34.5°S, 58.5°W)									
Time	h°F2	foF2-Count	h°F	foF1	h'E	foE	foEs	(MHz) F2	January 1951
00	10.7	28	360			3.0	2.40		
01	10.0	28	330			2.7	2.40		
02	9.3	29	330			2.2	2.45		
03	8.8	28	330				2.35		
04	8.0	28	360				2.30		
05	8.0	28	300		170	(1.80)	2.5	2.25	
06	9.0	27	260		120	2.80	3.1	2.50	
07	---	9.8	29	245	---	119	3.35	3.7	2.40
08	---	10.6	30	<240	6.8	117	---	4.2	2.20
09	(485)	11.4	23	240	0.9	113	4.10	5.0	2.30
10	505	11.9	23	240	7.0	111	---	5.0	2.30
11	495	12.4	30	<235	7.0	111	---	2.30	
12	490	13.0	23	(230)	6.8	115	---	2.30	
13	460	>13.2	30	230	6.8	114	---	2.35	
14	440	13.2	28	(235)	6.6	115	---	2.40	
15	435	12.6	27	240	6.4	111	---	2.45	
16	430	11.7	30	(245)	6.0	118	---	4.2	
17	420	11.2	30	250	5.8	122	3.40	3.6	2.40
18	(400)	11.0	30	270	---	127	---	3.6	2.35
19	11.5	30	(335)	---		4.0	2.30		
20	11.6	28	<400	---		4.0	2.25		
21	11.6	27	410	---		3.2	2.25		
22	11.8	24	385	---		3.4	2.30		
23	>10.8	26	365	---			2.40		

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 62

Buenos Aires, Argentina (34.5°S, 58.5°W)									
Time	h°F2	foF2-Count	h°F	foF1	h'E	foE	foEs	(MHz) F2	February 1951
00			10.9		25	300			
01			11.0		26	20			
02			9.7		26	20			
03			11.6		25	270			
04			7.4		24	20			
05			7.3		25	340			
06			6.4		26	260			
07			10.1		27	245			
08			11.2		26	235	(6.0)	116	2.70
09			11.6		26	230	(7.0)	112	2.60
10			(460)		12.7	21	220	(7.0)	111
11			(415)		13.1	28	230	(7.0)	111
12			100		14.0	28	220	(7.0)	111
13			375		14.4	28	(220)	(6.0)	117
14			375		14.4	28	(220)	(6.0)	117
15			360		14.0	25	235	(6.0)	113
16			370		13.9	27	240	(6.3)	117
17			340		13.7	27	250	(6.0)	121
18			375		13.1	27	275	(6.0)	119
19			12.0		27	300			
20			12.4		27	310			
21			12.5		25	310			
22			11.0		26	320			
23			11.5		24	310			

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 64

Lwiro, Belgian Congo (2.3°S, 28.0°E)									
Time	h°F2	foF2-Count	h°F	foF1	h'E	foE	foEs	(MHz) F2	January 1958
00			>11.7		22	270			(1.6) (2.57)
01			11.3		23	280			(1.6) 2.59
02			(10.2)		23	265			(1.7) 2.60
03			8.6		23	235			(1.6) 2.54
04			7.8		23	245			(1.5) 2.63
05			6.3		22	240			(1.5) 2.72
06			>6.8		20	280			(1.7) 2.66
07			9.4		19	255			(2.70) (2.82)
08			10.4		19	245			1.11 2.73
09			11.0		23	240			1.11 3.46 2.46
10			11.6		24	235			1.11 4.20 2.21
11			(400)		12.7	23	230		1.09 4.30 2.23
12			495		13.5	24	230		1.09 4.40 2.21
13			530		13.2	24	230		1.11 4.30 2.17
14			575		13.1	22	225		1.11 4.20 2.07
15			540		13.6	23	230		1.11 3.95 2.10
16			490		13.7	24	245		1.13 3.60 2.14
17			(470)		13.4	24	260		1.15 3.10 2.16
18			>11.9		24	305			(2.6) (2.15)
19			>12.1		24	395			(1.9) (2.14)
20			>12.0		24	395			(1.8) (2.18)
21			>11.6		24	330			(1.6) <2.70
22			(12.6)		23	275			(1.8) <2.70
23			>12.0		23	260			(1.6) <2.70

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 67

Singapore, British Malaya (1.3°N, 103.8°E)							December 1957		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	10.7	30	315		130	---	<1.2	2.20	
01	10.5	29	320		120	---	<1.2	2.30	
02	10.0	31	305			---	<1.1	2.45	
03	9.0	30	300		130	---	<1.0	2.50	
04	8.4	29	295		130	---	<1.0	2.50	
05	7.6	29	270			---	<1.0	2.60	
06	7.4	30	300		140	1.80	1.9	2.55	
07	9.0	30	265		120	2.95		2.55	
08	10.5	31	250		110	3.65		2.35	
09	11.0	31	245		110	4.05		2.00	
10	550	11.3	31	240	105	4.30		1.80	
11	640	11.0	31	235	105	<4.50		1.75	
12	595	12.3	30	235	---	105	4.50	1.75	
13	600	12.0	30	225	---	105	4.45	1.70	
14	600	11.8	30	235	---	110	4.25	1.65	
15	560	11.6	31	245	---	110	3.95	1.65	
16		11.6	30	250		115	3.60	1.70	
17		11.5	30	285		120	2.90	2.9	
18		>11.3	30	340		115	<1.90	3.2	
19		11.3	31	410		145	---	3.2	
20		>11.3	28	425			2.9	1.05	
21		11.2	30	365			2.9	2.05	
22		10.9	30	340			2.5	2.10	
23		10.7	30	300			<1.3	2.10	

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 69

Lwiro, Belgian Congo (2.3°S, 20.8°E)							September 1957		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	>10.0	26	215			(1.7)	(2.94)		
01	>9.8	23	240			(1.6)	(2.73)		
02	>9.9	20	240			(1.6)	<2.93		
03	9.8	21	235			(1.8)	(2.87)		
04	8.8	20	235			(1.8)	3.05		
05	7.6	21	230			(1.6)	3.28		
06	7.0	17	250	---	---	(2.1)	3.20		
07	-->10.0	19	240		121	2.00	(3.32)		
08	(250)	>10.8	18	230		3.55	<3.16		
09	(280)	(12.6)	25	220		3.90	4.4	2.84	
10	-->12.0	23	220	---	4.20	4.4	2.63		
11	(415)	>12.7	24	210	---	4.30		2.44	
12	410	>10.0	25	205	(5.3)	4.40		(2.43)	
13	440	>12.6	23	205	---	4.30		(2.34)	
14	475	>10.0	21	210	---	4.10			
15	470	>11.4	24	220	---	3.90			
16	470	>12.5	26	235	111	3.50		(2.36)	
17	-->10.0	28	255	115	2.90	3.1			
18		>12.6	26	300		(2.0)	(2.73)		
19		>10.0	27	360		(1.9)	---		
20		>10.0	27	305		1.3	---		
21		>9.8	29	240			---		
22		>10.0	28	220		(1.6)	(2.86)		
23		>10.0	27	215			(2.77)		

Time: Local.

Sweep: 1.25 Mc to 25.0 Mc in 3 minutes.

Table 71

Lwiro, Belgian Congo (2.3°S, 20.8°E)							August 1957		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	>10.0	24	205			(1.7)	(3.00)		
01	>9.6	24	200			(1.8)	(3.10)		
02	>9.0	23	215			(1.9)	3.02		
03	8.0	23	225			(2.0)	3.05		
04	7.5	23	230			(2.0)	3.16		
05	>7.0	22	230			(2.1)	3.10		
06	>7.0	22	260	---	E	(2.0)	3.18		
07	250	10.4	22	245	120	2.60	3.39		
08	260	12.1	23	235	111	3.30	3.8	3.30	
09	270	12.5	27	230	---	3.70	4.4	3.25	
10	305	12.2	27	215	(5.1)	111	4.00	4.6	
11	(325)	12.5	27	210	(5.2)	109	4.20	2.80	
12	360	12.7	27	200	(5.3)	109	4.25	2.69	
13	390	>12.7	29	210	(5.2)	111	4.20	2.59	
14	405	>13.0	27	210	---	111	4.05	(2.56)	
15	415	>12.8	26	215	---	111	3.85	(2.54)	
16	400	>13.0	28	230	---	111	3.55	2.53	
17	(395)	>13.2	26	240	115	2.85	3.3	(2.65)	
18	(13.5)	27	275	---	1.65	(2.7)	(2.70)		
19	>18.2	27	300	---	(2.6)	<2.83			
20	>10.0	27	300	---	(2.2)	---			
21	>10.0	24	235	---	(1.8)	<3.40			
22	>9.8	24	210	---	(1.7)	---			
23	>10.0	24	210	---	(1.8)	<3.42			

Time: Local.

Sweep: 1.25 Mc to 25.0 Mc in 3 minutes.

Table 68

Port Lockroy (64.8°S, 63.5°W)							November 1957		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			10.1	26	350		160	---	1.2
01			10.2	25	355		140	---	1.1
02			445	10.2	22	360	110	1.4	1.4
03			425	10.3	21	350	110	1.6	1.6
04			450	10.1	27	310	3.6	120	2.4
05			445	10.3	27	290	4.0	110	2.9
06			455	9.6	28	265	4.5	110	2.8
07			>475	9.5	27	250	5.0	105	3.2
08			>495	9.0	29	250	5.0	105	3.4
09			>505	8.6	29	245	5.4	105	3.7
10			>540	8.4	29	240	5.4	105	4.3
11			>520	8.2	28	240	5.6	105	4.4
12			>505	8.2	28	240	5.6	105	3.5
13			>510	7.9	29	240	5.6	105	3.9
14			>495	7.9	29	245	(5.4)	105	3.8
15			495	7.9	29	245	5.4	105	2.45
16			490	7.8	29	250	---	105	3.5
17			450	7.9	28	255	---	110	3.3
18			8.2	26	265		110	2.8	2.50
19			8.4	27	250		115	2.5	2.50
20			8.6	24	300		130	2.2	2.40
21			8.8	25	320			1.7	1.8
22			9.1	23	345			1.6	1.6
23			10.7	24	350			1.4	2.30

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 70

Port Lockroy (64.8°S, 63.5°W)							September 1957		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			(6.0)	15	345			2.30	
01			5.8	16	350			2.30	
02			5.4	16	355			(2.45)	
03			5.2	12	330			(2.45)	
04			4.9	15	330			(2.40)	
05			4.8	20	305			1.2	
06			6.0	20	265			2.50	
07			6.8	21	240			2.75	
08			7.8	24	230			3.10	
09			9.6	24	235			3.0	
10			10.7	23	235			3.0	
11			11.1	23	225			3.0	
12			11.5	24	235			2.95	
13			11.4	23	235			3.05	
14			10.7	26	235			3.00	
15			10.2	25	240			3.00	
16			9.5	25	240			3.10	
17			>9.2	24	245			2.0	
18			>9.0	21	245			2.95	
19			8.4	18	240			2.95	
20			7.0	18	245			0.9	
21			6.3	13	265			(2.60)	
22			6.1	15	295			2.55	
23			(5.8)	14	325			(2.45)	

Time: 60.0°W.

Sweep: Local.

Sweep: 1.25 Mc to 25.0 Mc in 3 minutes.

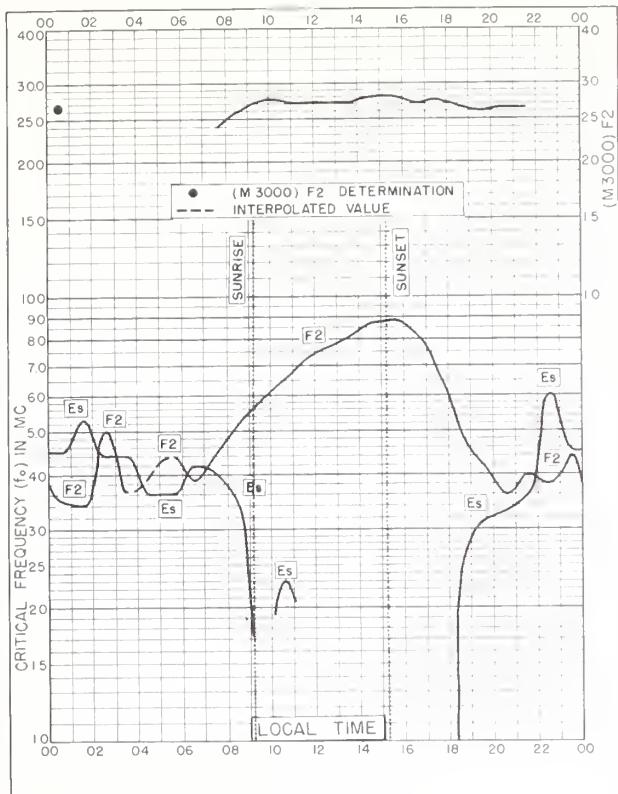


Fig. 1. POINT BARROW, ALASKA  
71.3°N, 156.8°W FEBRUARY 1960

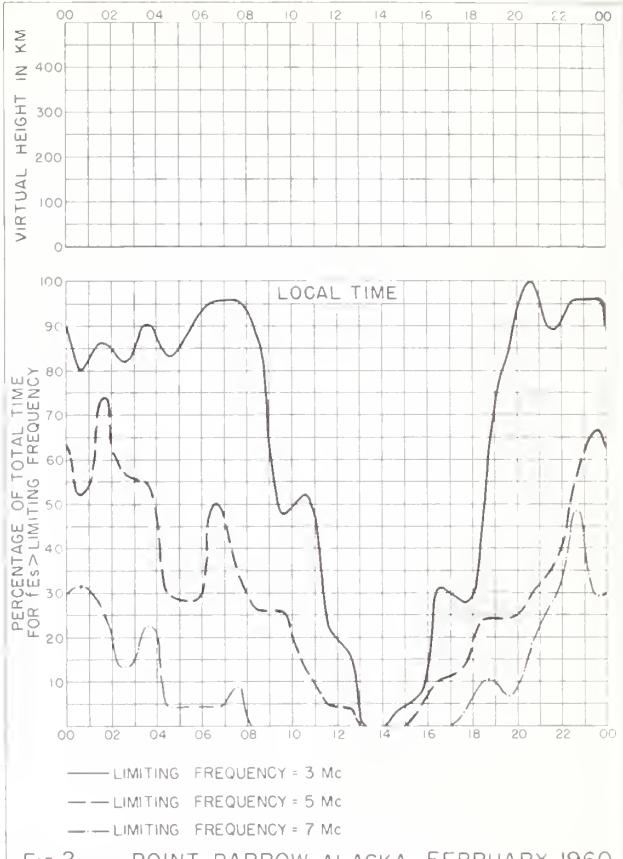


Fig. 2. POINT BARROW, ALASKA FEBRUARY 1960

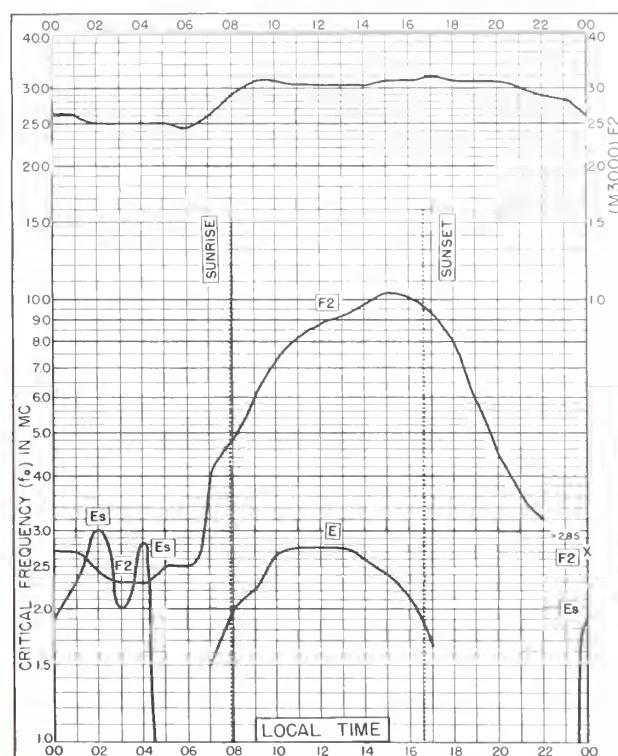


Fig. 3. ANCHORAGE, ALASKA  
61.2°N, 149.9°W FEBRUARY 1960

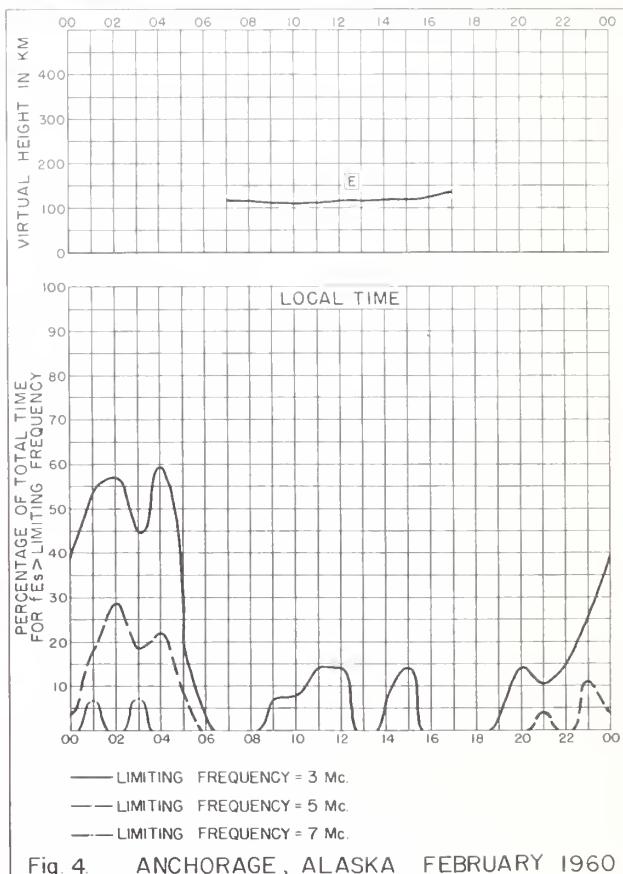
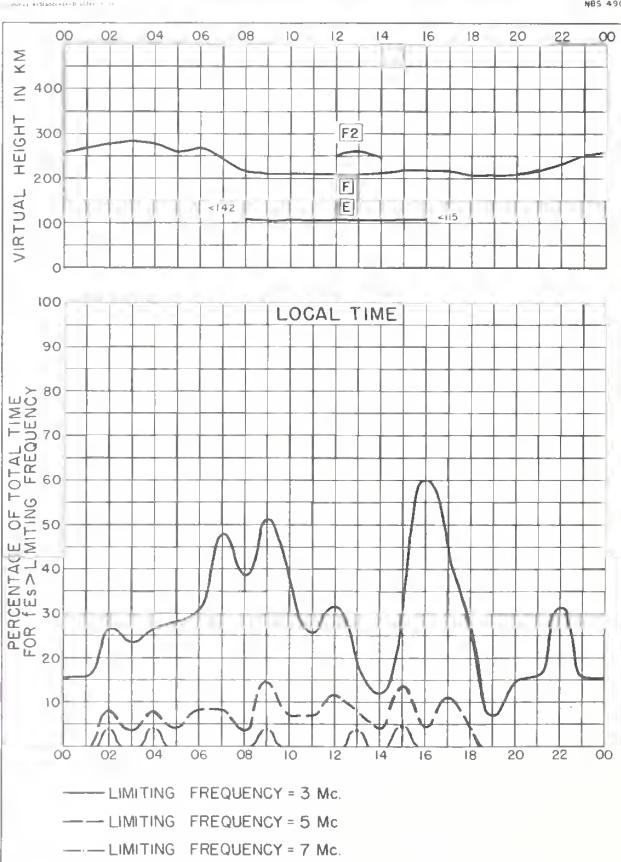
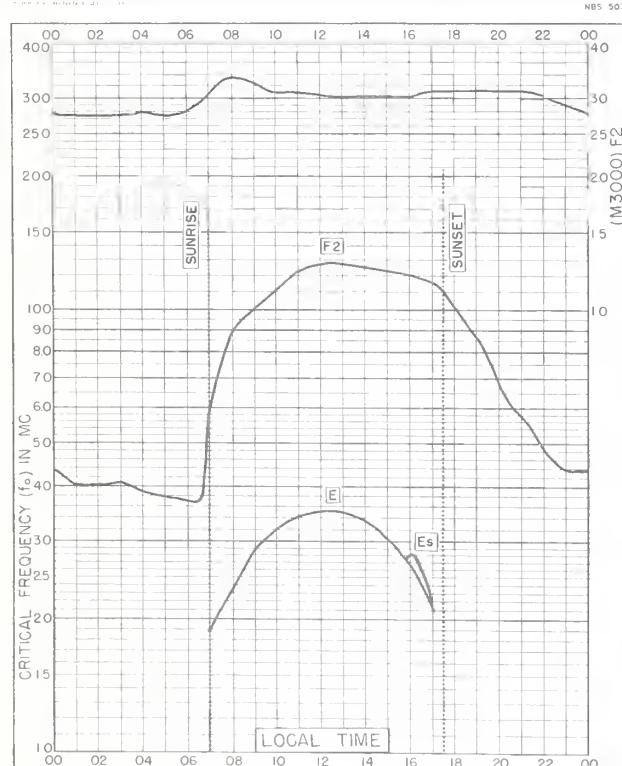
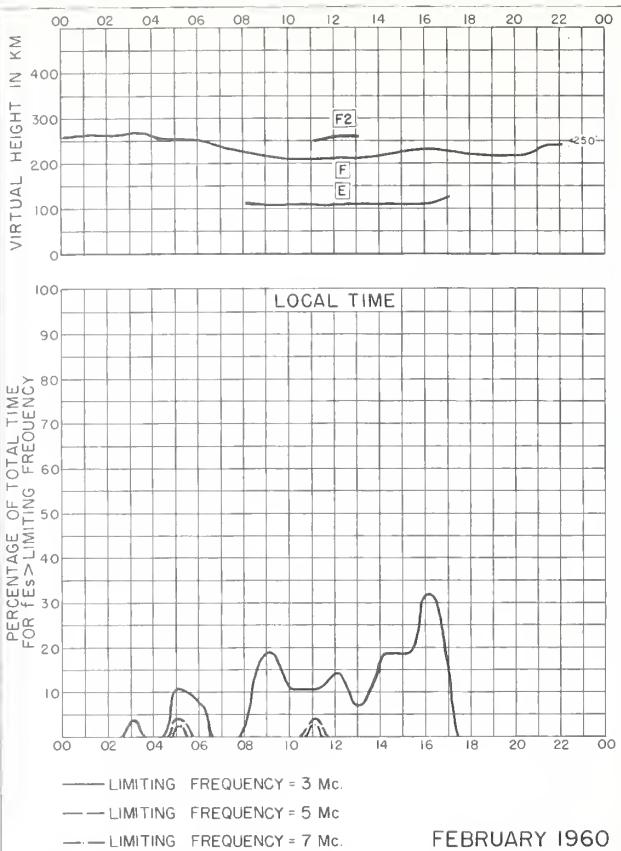
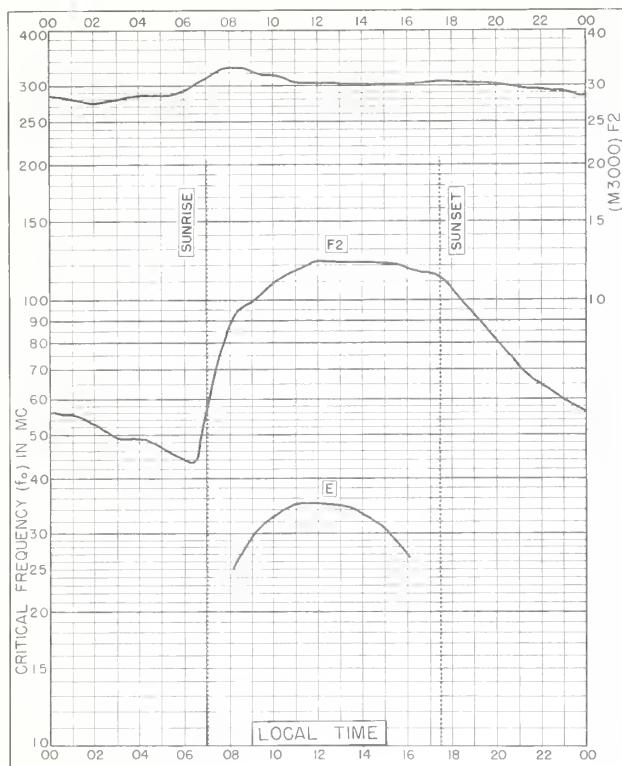


Fig. 4. ANCHORAGE, ALASKA FEBRUARY 1960



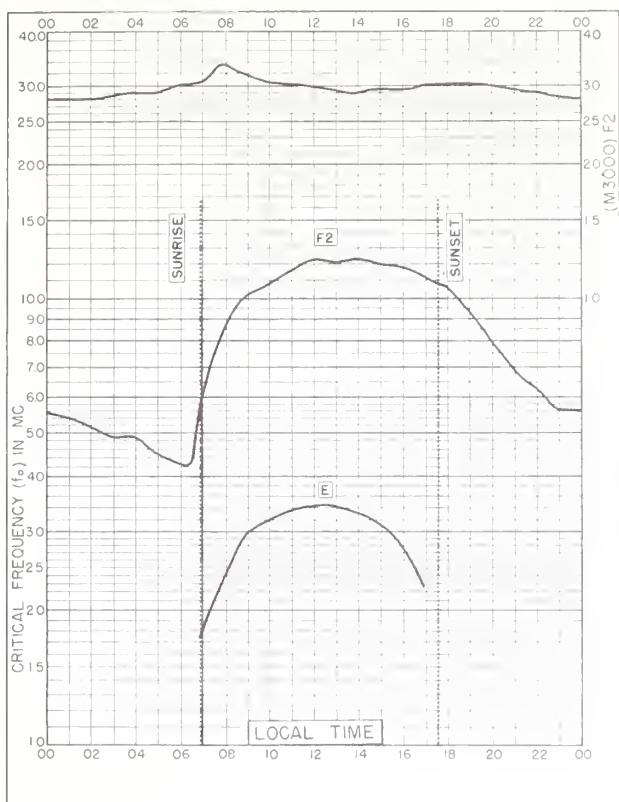


Fig. 9. WASHINGTON, D. C.  
38.7°N, 77.1°W FEBRUARY 1960

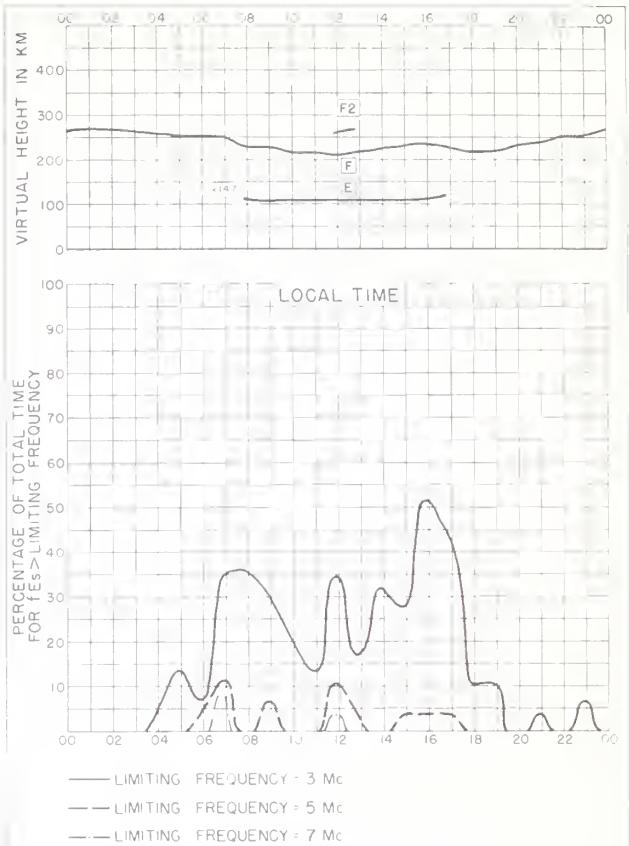


Fig. 10. WASHINGTON, D. C. FEBRUARY 1960

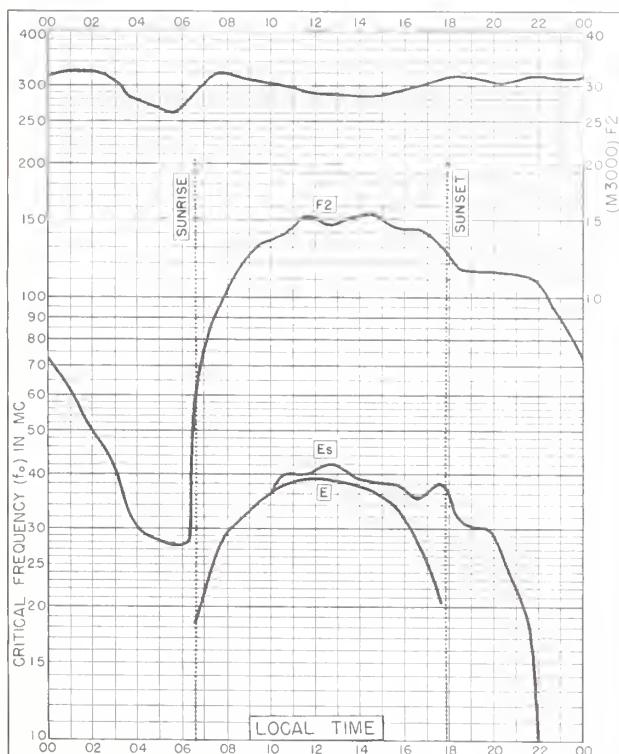


Fig. 11. MAUI, HAWAII  
20.8°N, 156.5°W FEBRUARY 1960

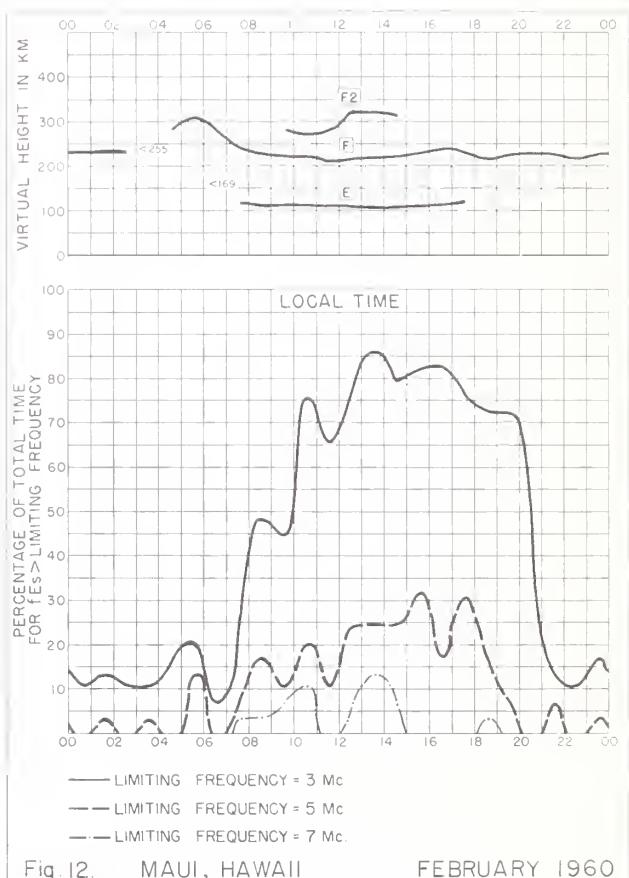
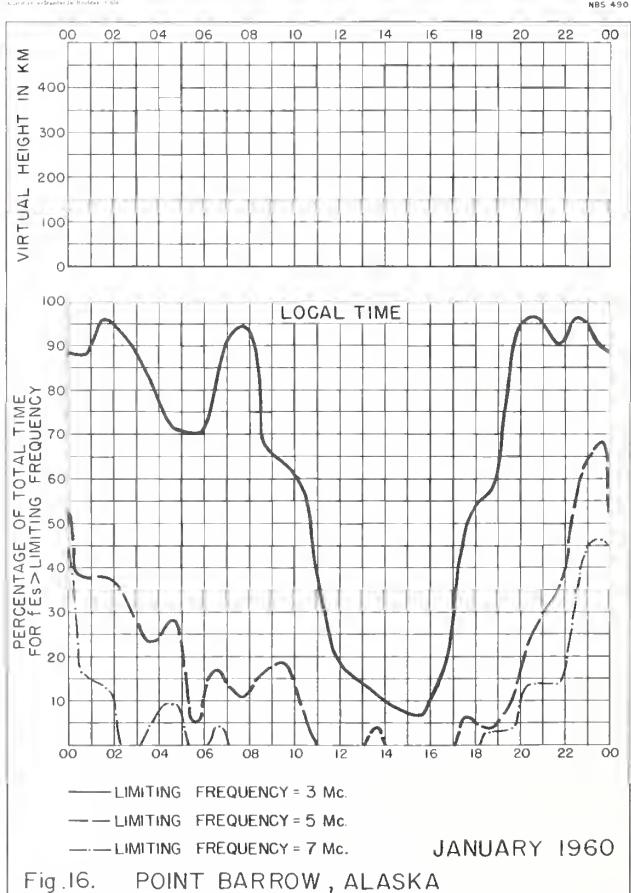
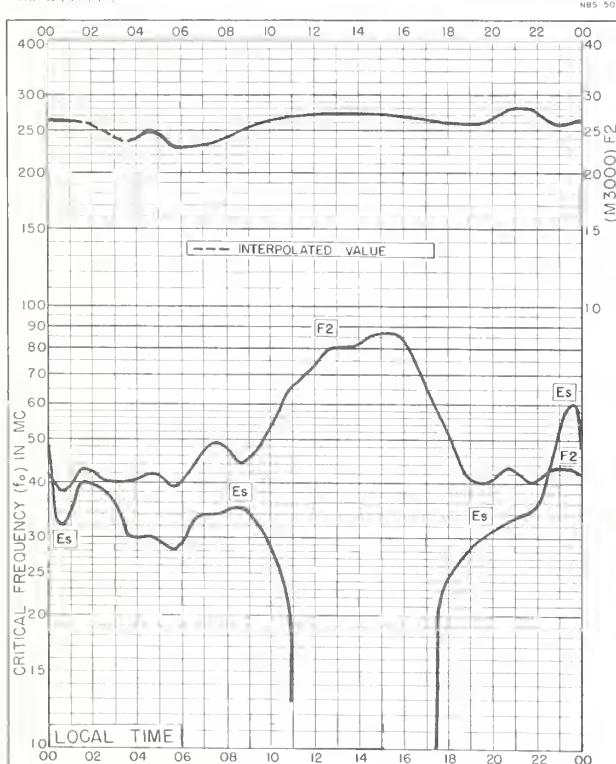
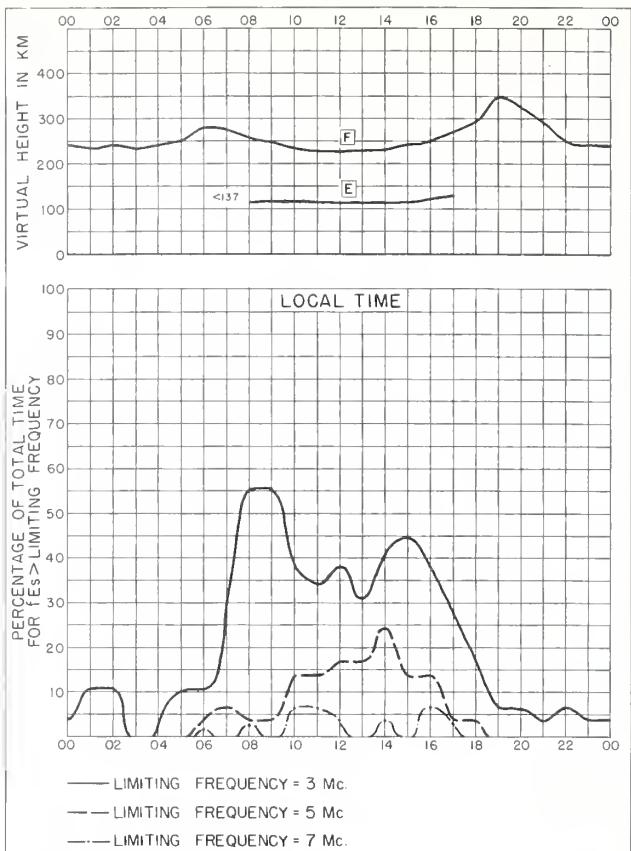
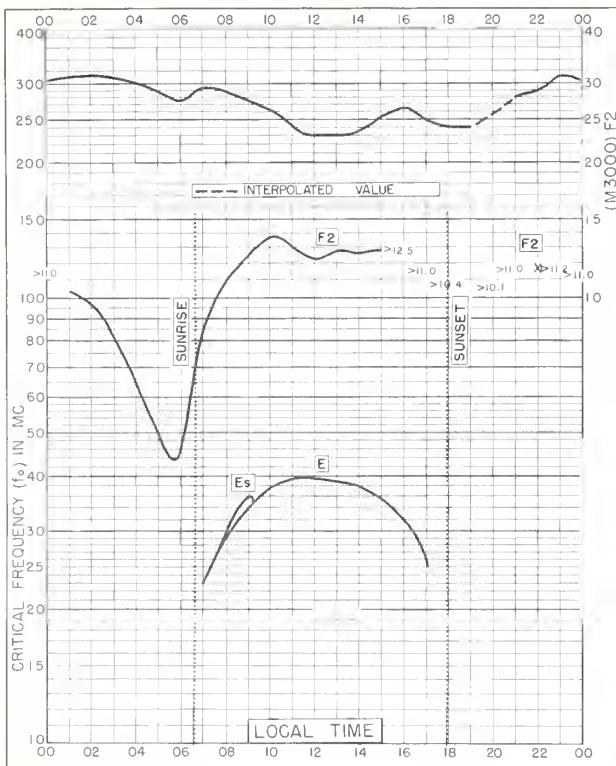
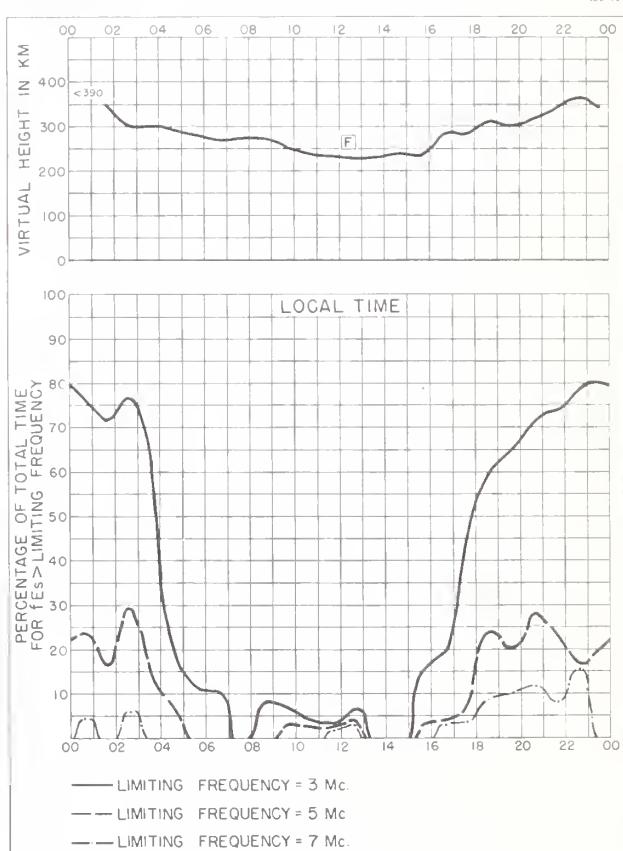
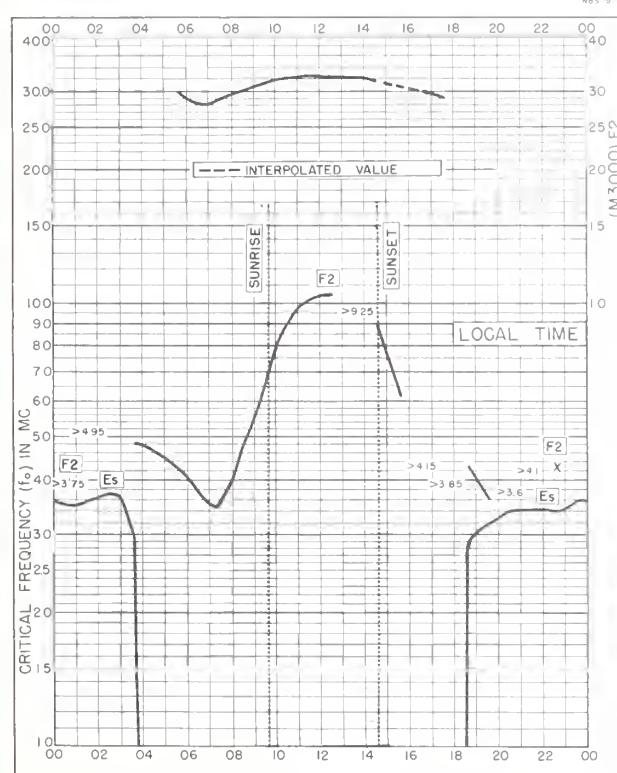
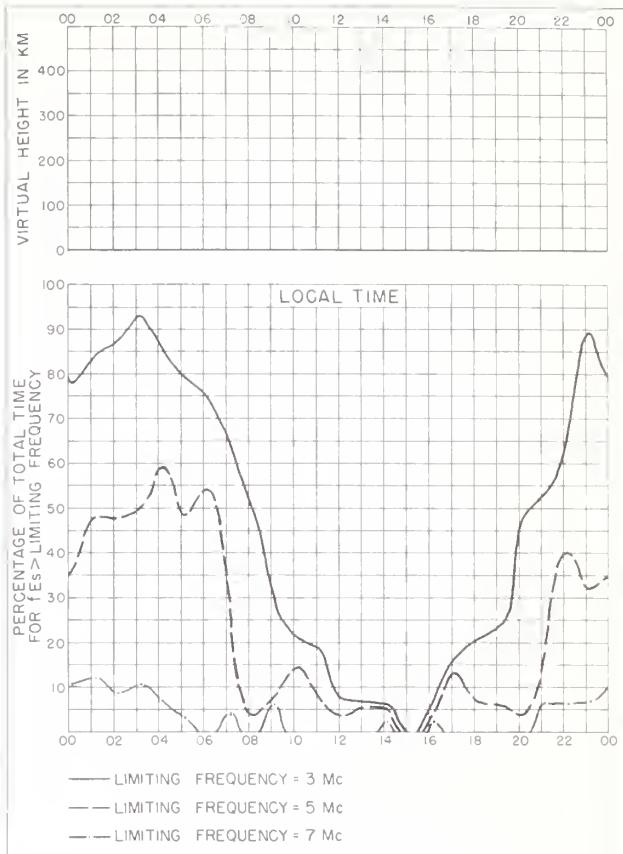
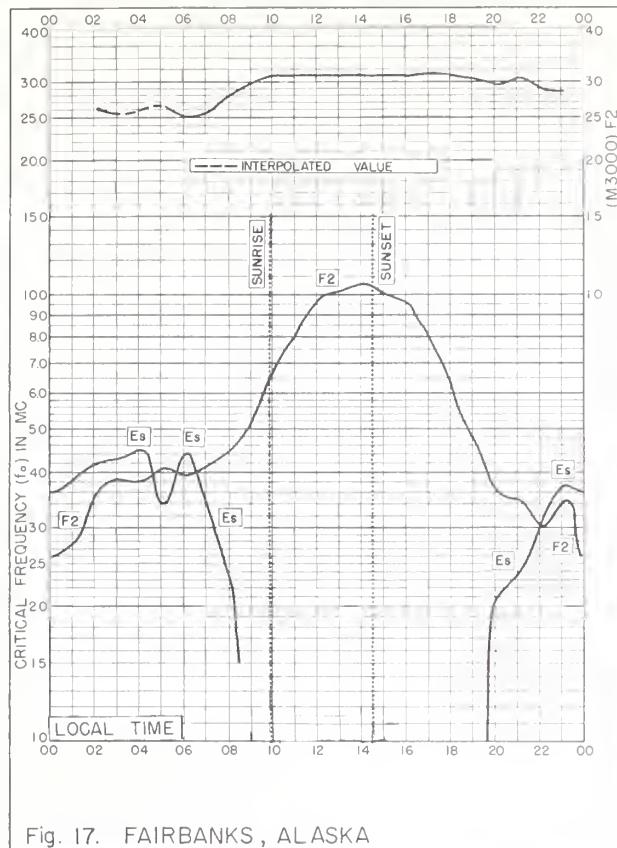
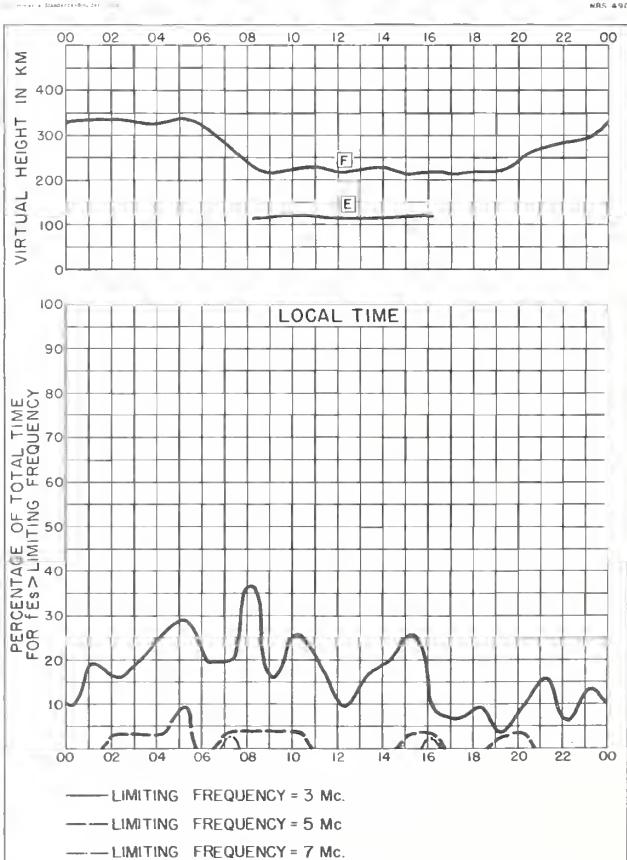
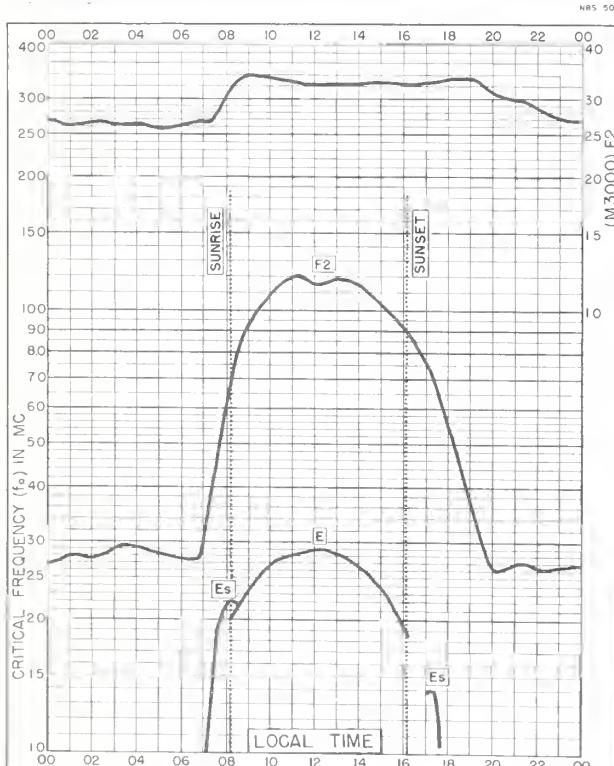
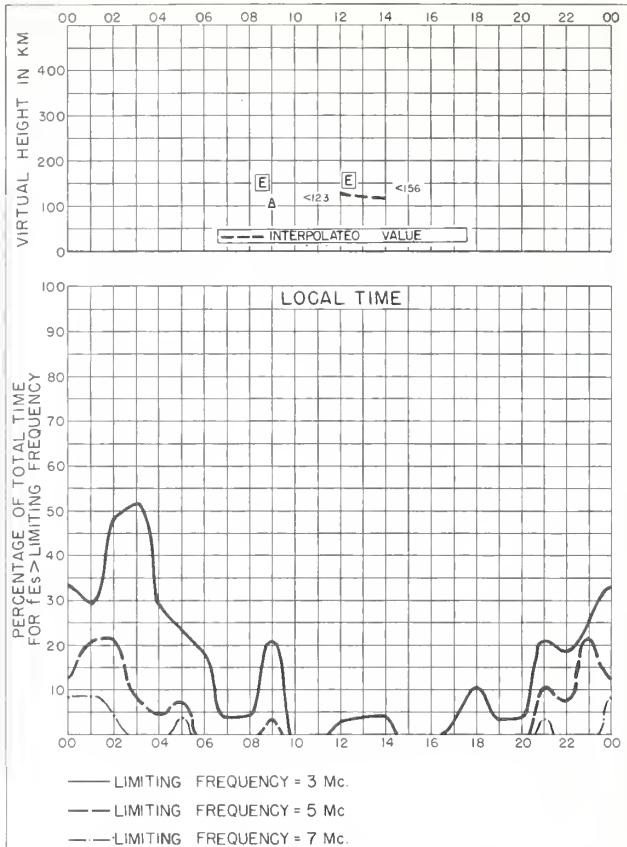
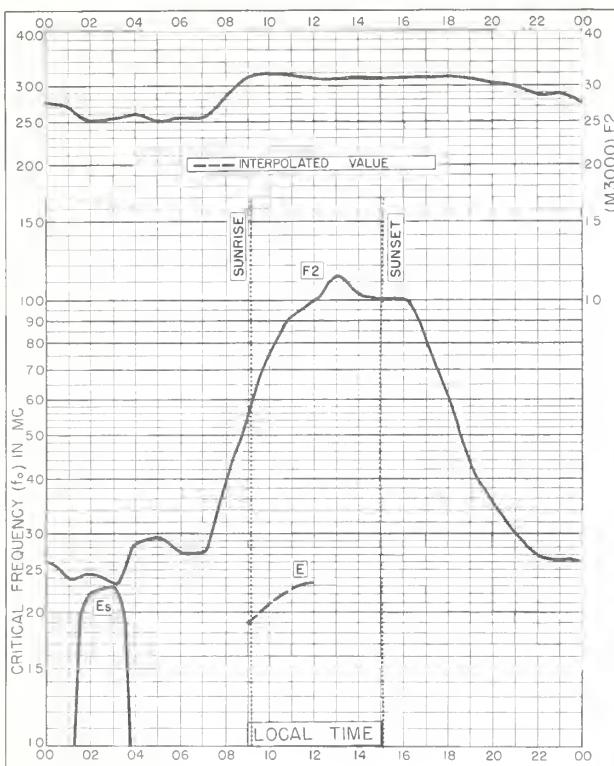


Fig. 12. MAUI, HAWAII FEBRUARY 1960







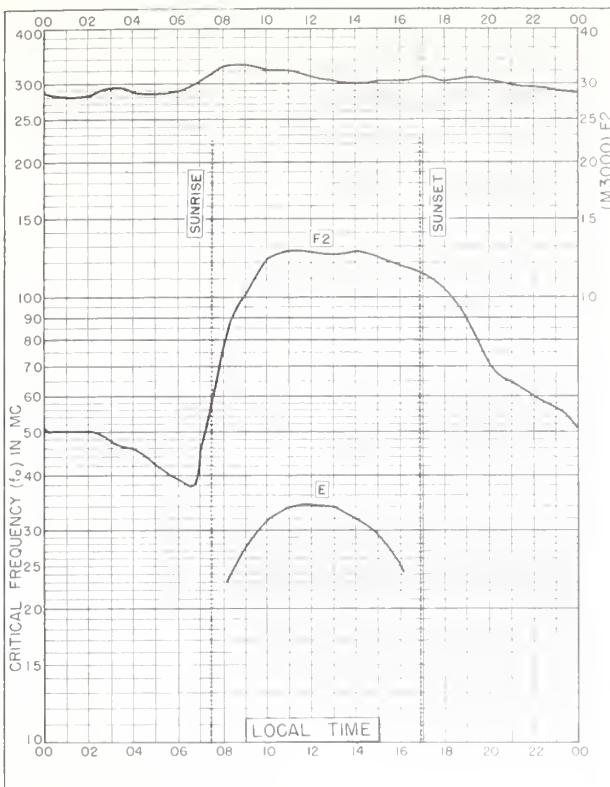


Fig. 25. FT. MONMOUTH, NEW JERSEY  
40.4°N, 74.1°W JANUARY 1960

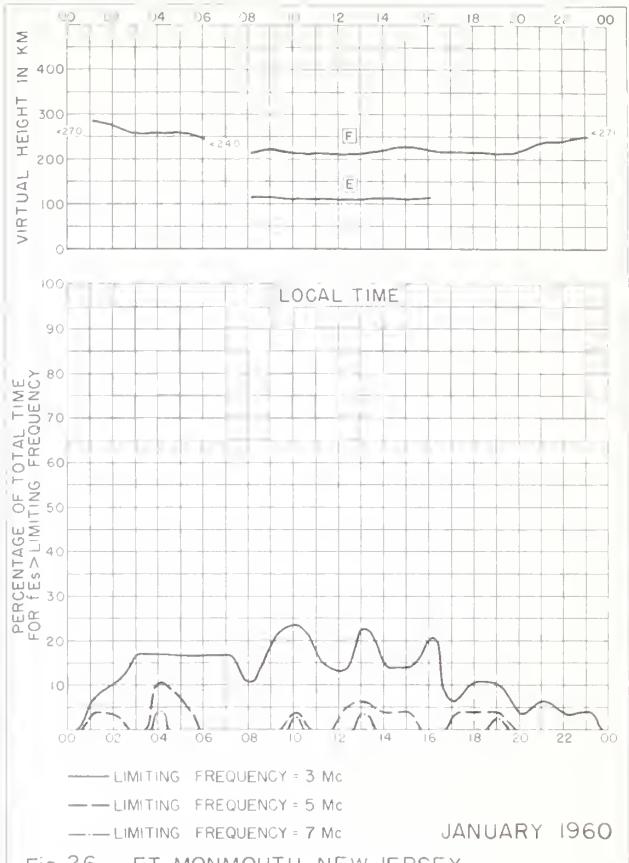


Fig. 26 FT. MONMOUTH, NEW JERSEY

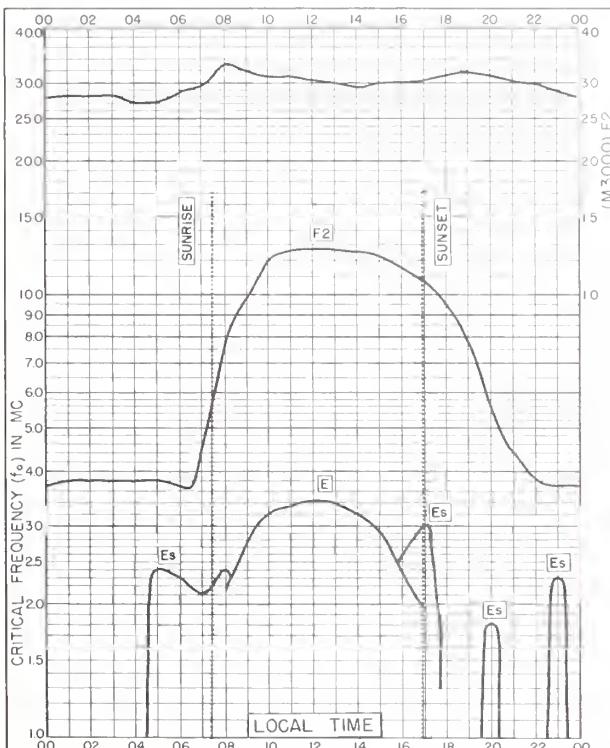


Fig. 27. BOULDER, COLORADO  
40.0°N, 105.3°W JANUARY 1960

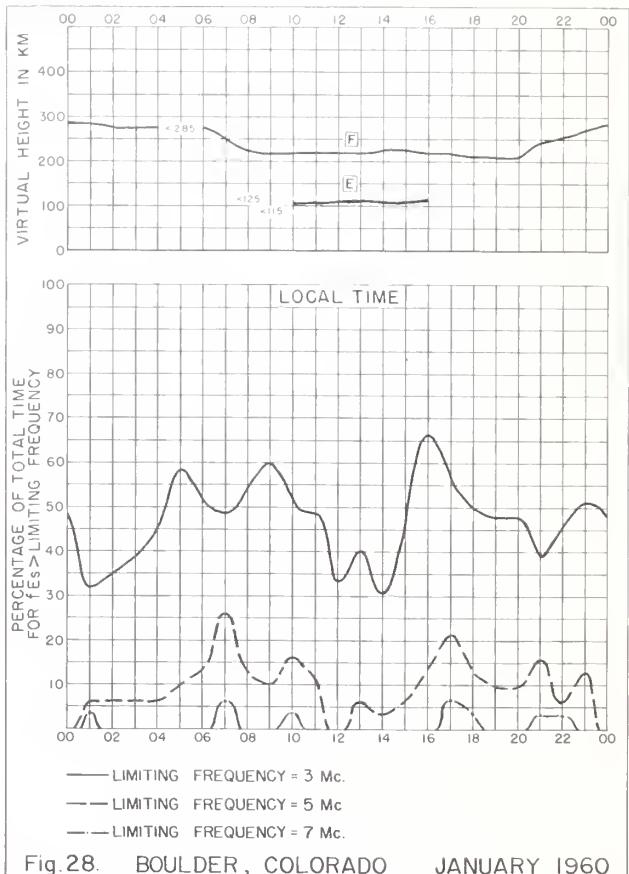
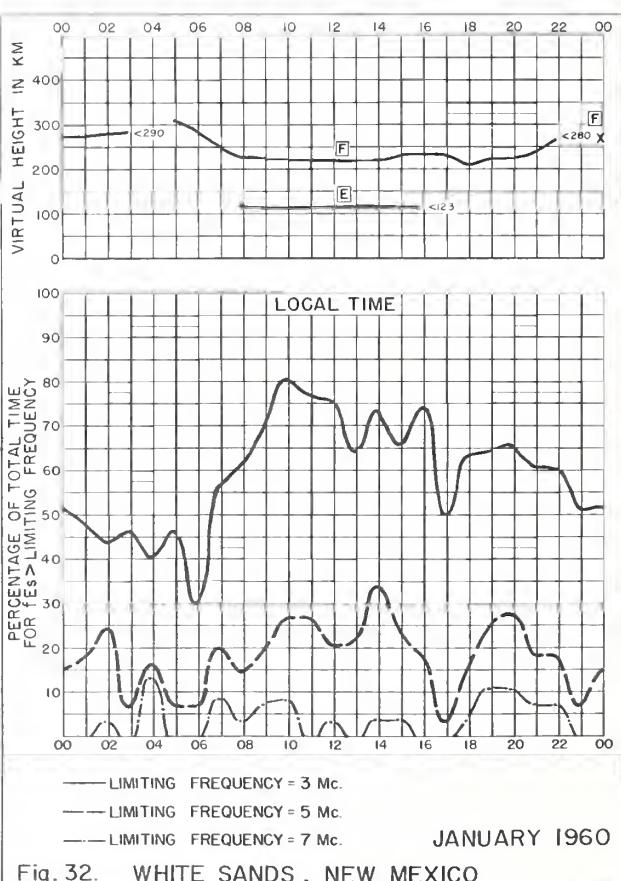
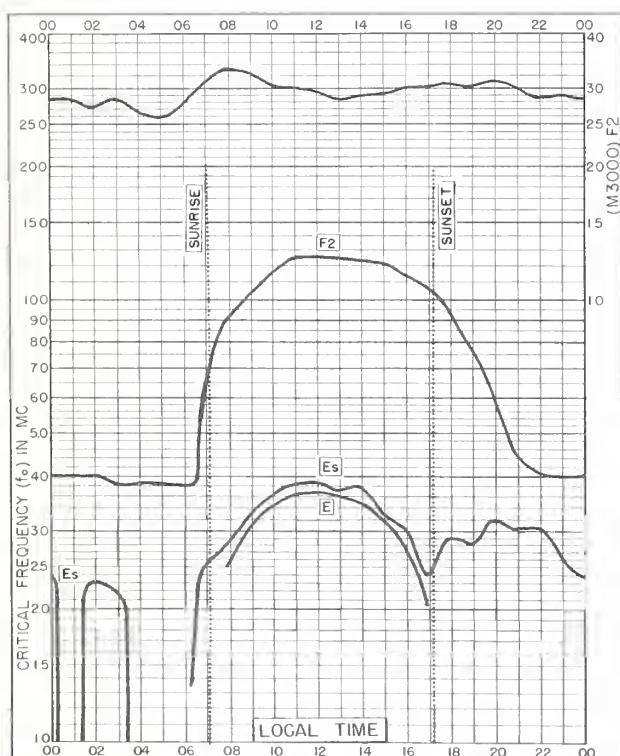
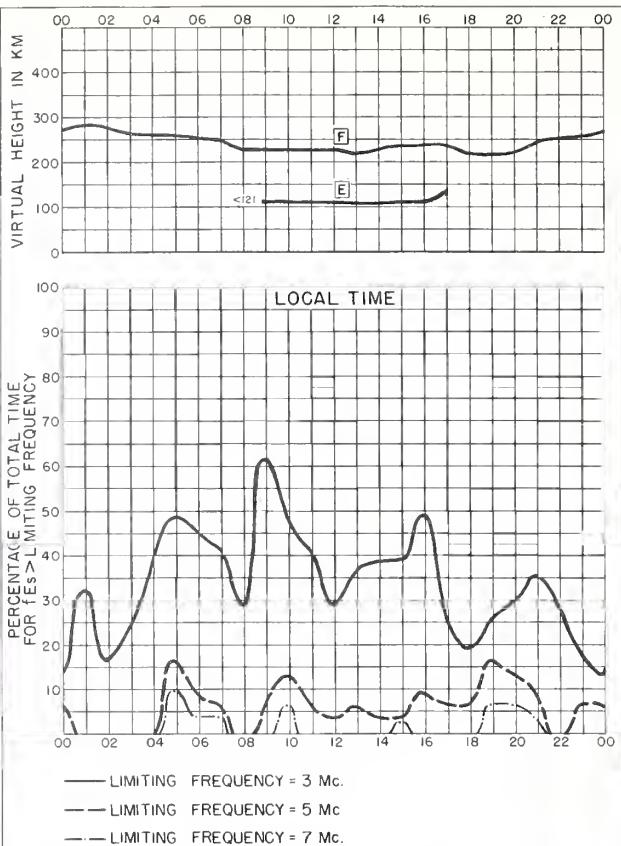
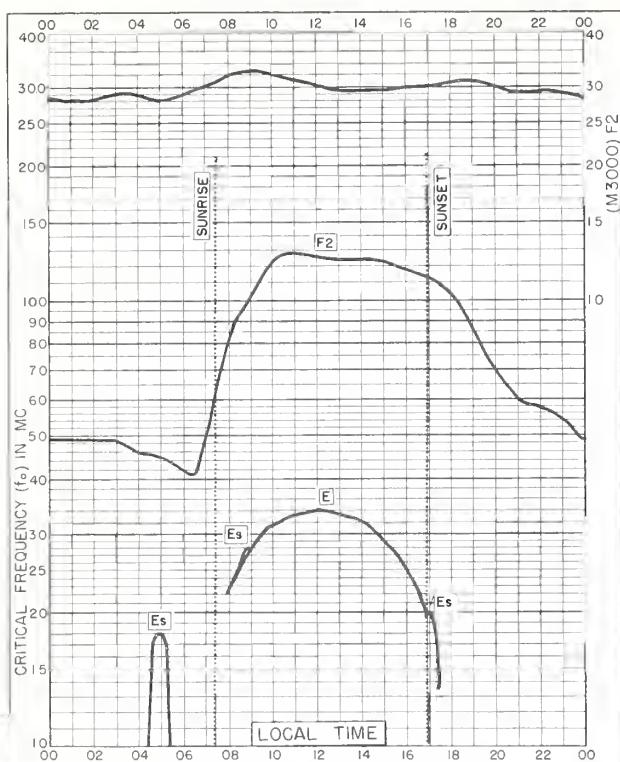


Fig. 28. BOULDER, COLORADO JANUARY 1960



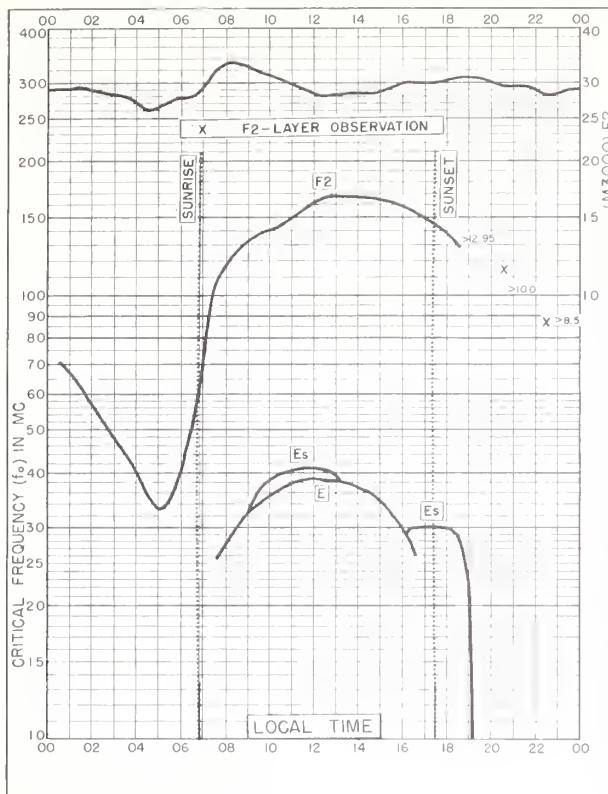


Fig. 33. OKINAWA I.  
26.3°N, 127.8°E      JANUARY 1960

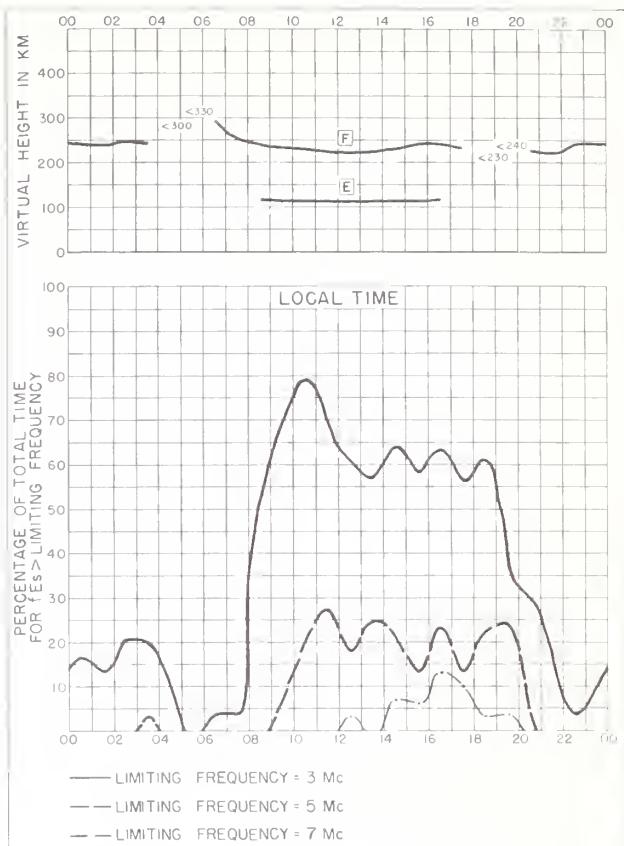


Fig. 34. OKINAWA I.      JANUARY 1960

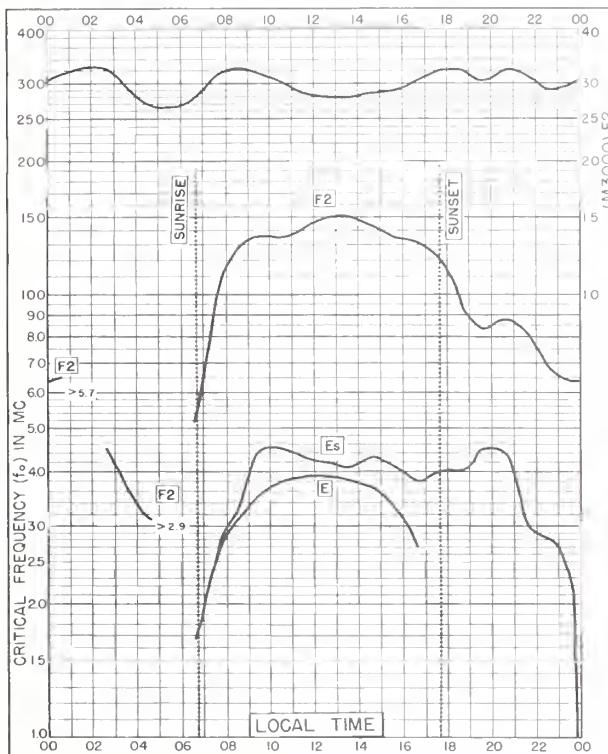


Fig. 35. MAUI, HAWAII  
20.8°N, 156.5°W      JANUARY 1960

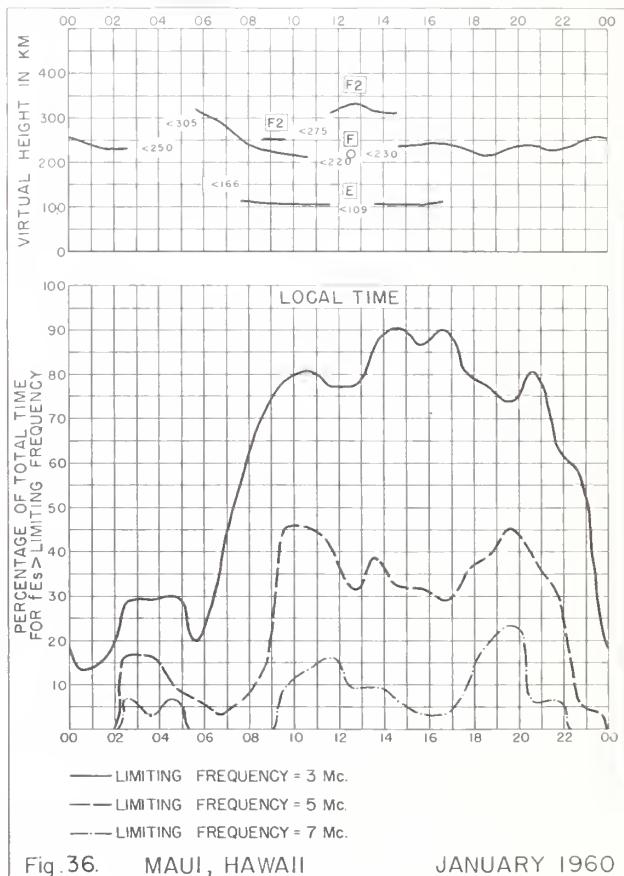


Fig. 36. MAUI, HAWAII      JANUARY 1960

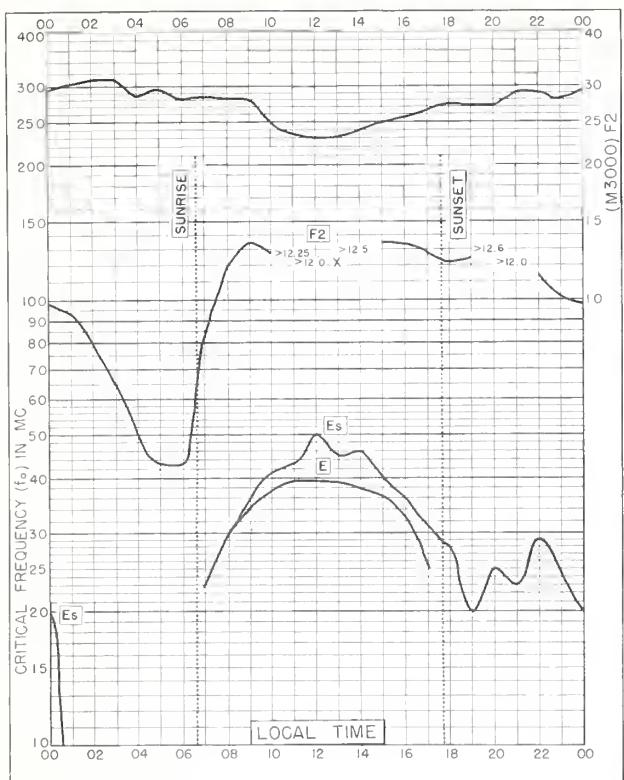


Fig. 37. BAGUIO, P. I.  
16.4°N, 120.6°E JANUARY 1960

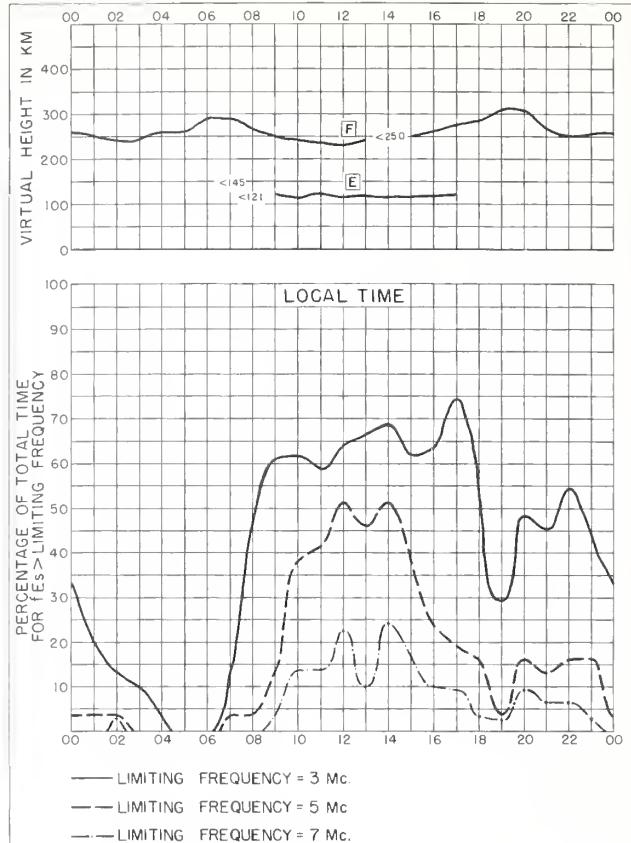


Fig. 38. BAGUIO, P. I. JANUARY 1960

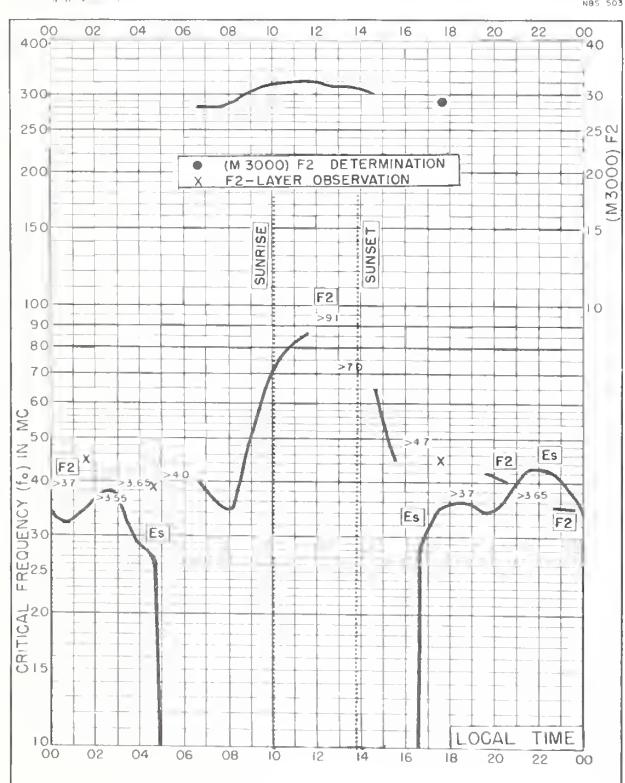


Fig. 39. REYKJAVIK, ICELAND  
64.1°N, 21.8°W DECEMBER 1959

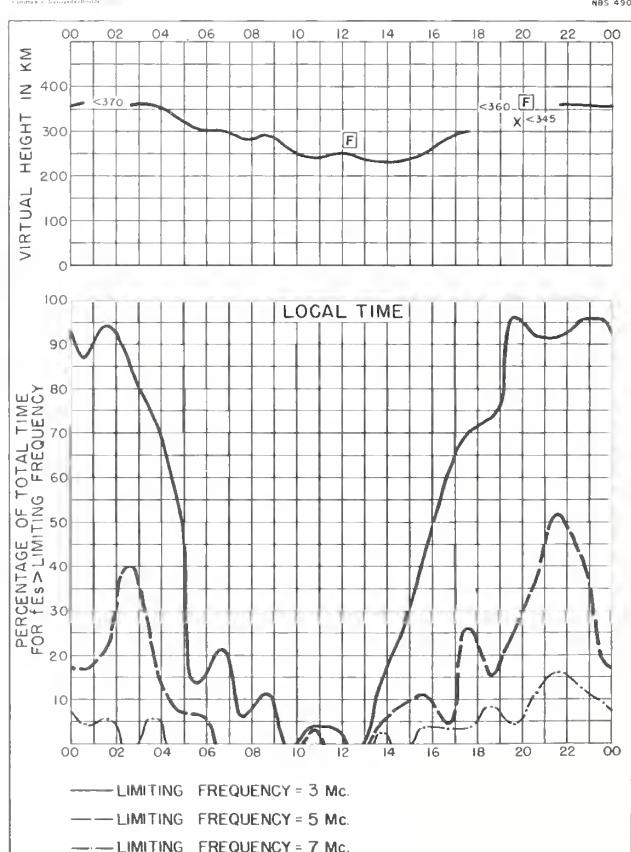


Fig. 40. REYKJAVIK, ICELAND DECEMBER 1959



Fig. 41. BOULDER, COLORADO  
40.0°N, 105.3°W      DECEMBER 1959

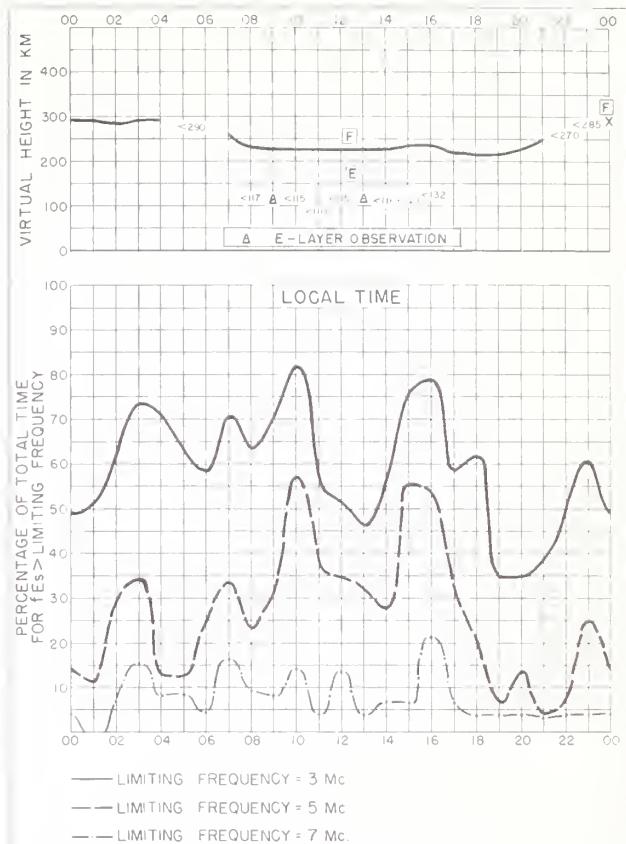


Fig. 42. BOULDER, COLORADO      DECEMBER 1959

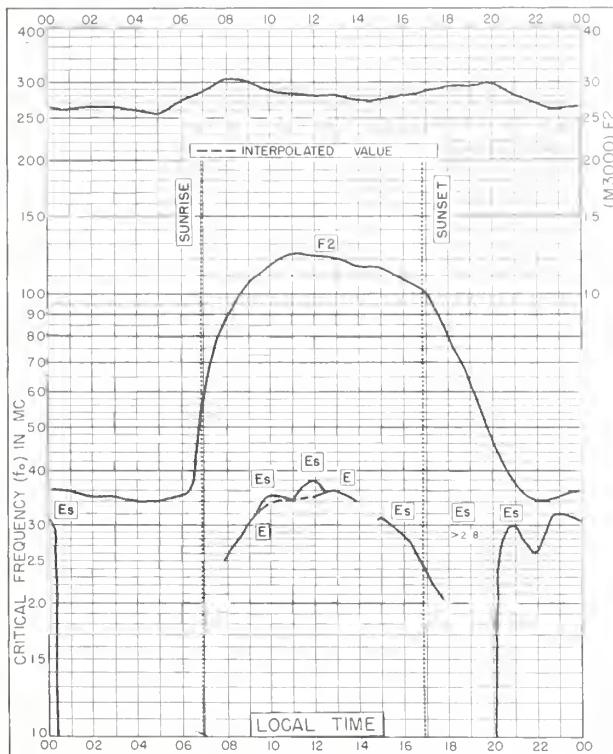


Fig. 43. WHITE SANDS, NEW MEXICO  
32.3°N, 106.5°W      DECEMBER 1959

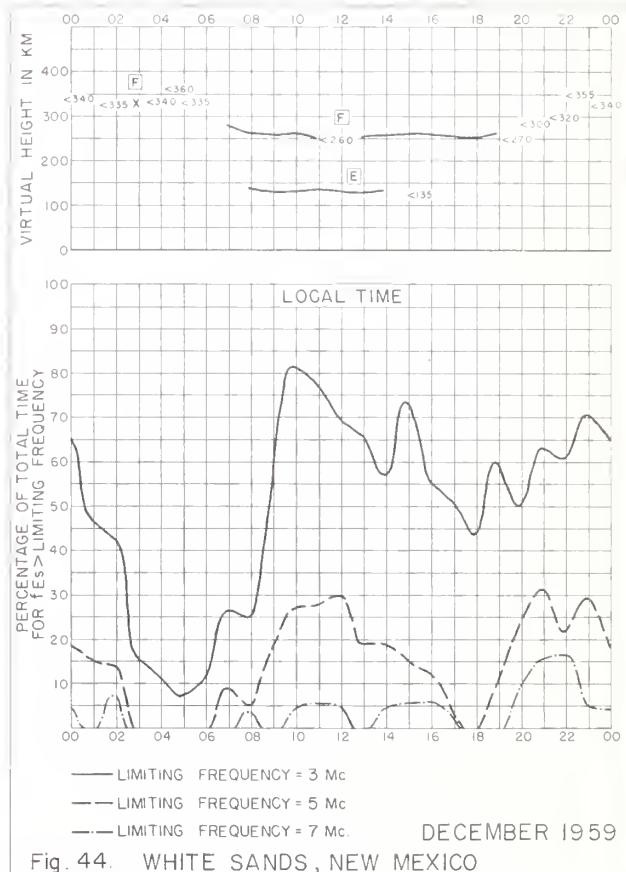


Fig. 44. WHITE SANDS, NEW MEXICO      DECEMBER 1959

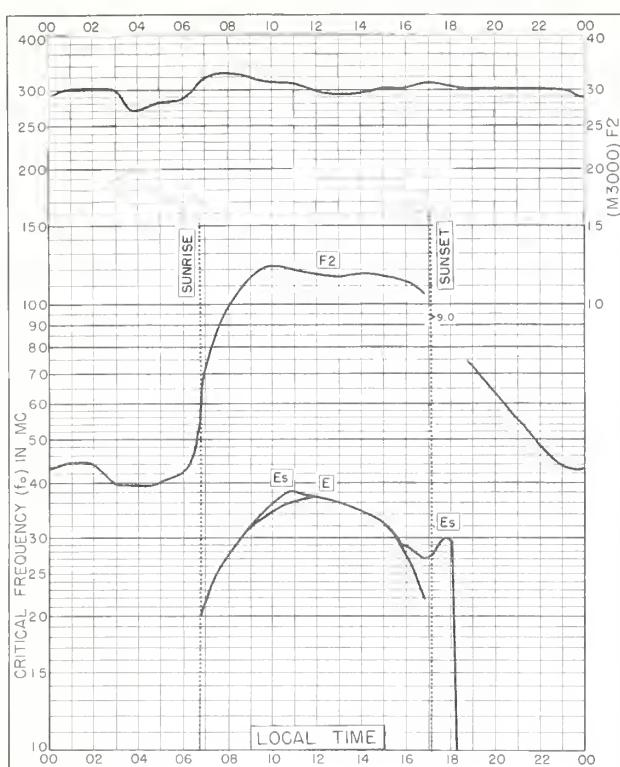


Fig. 45. GRAND BAHAMA I.  
26.6°N, 78.2°W      DECEMBER 1959

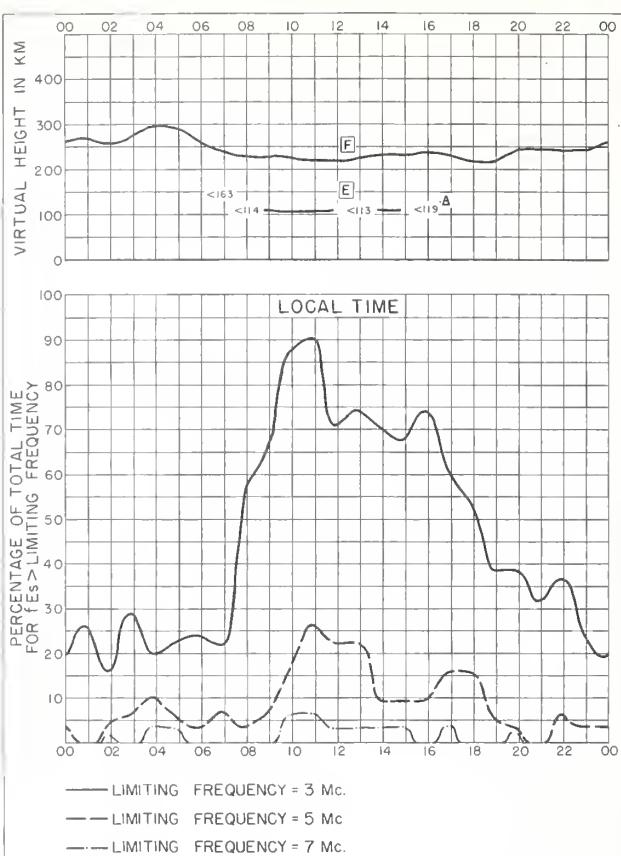


Fig. 46. GRAND BAHAMA I.      DECEMBER 1959

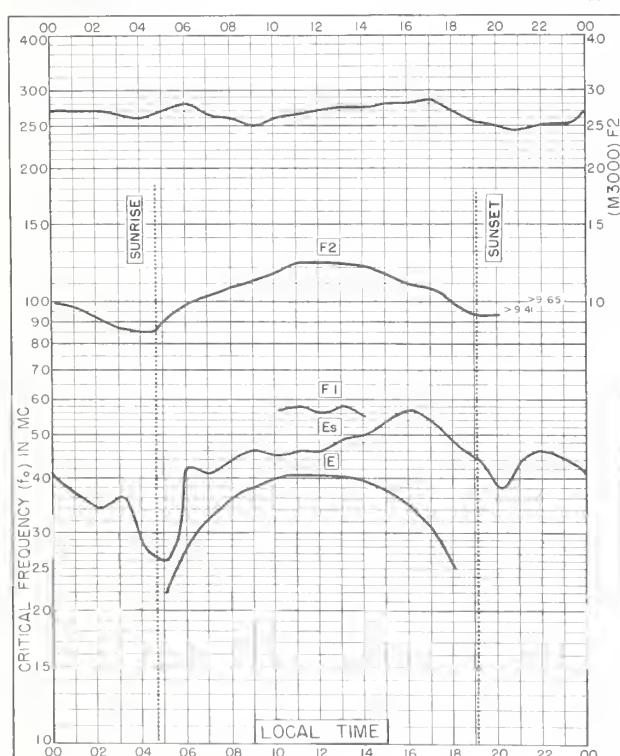


Fig. 47. CONCEPCION, CHILE  
36.6°S, 73.0°W      DECEMBER 1959

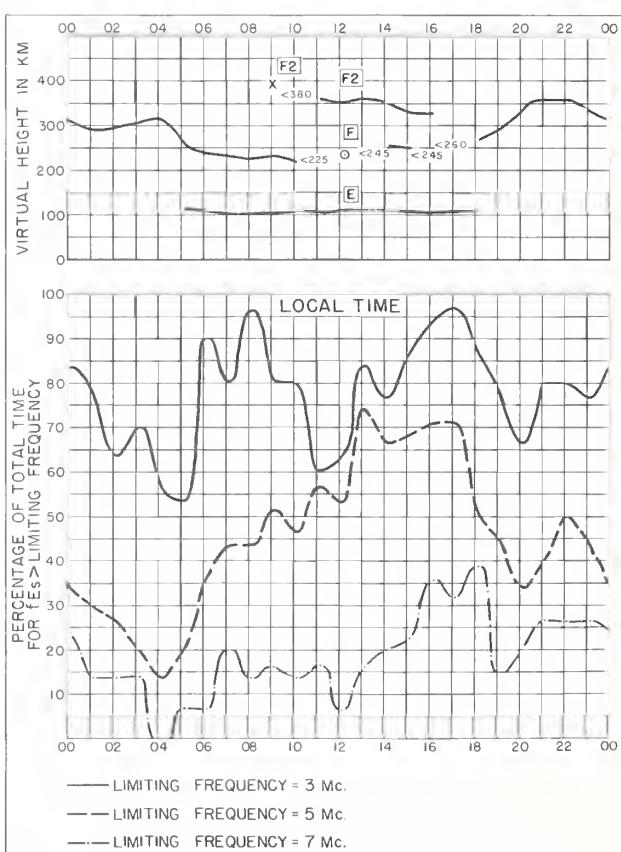


Fig. 48. CONCEPCION, CHILE      DECEMBER 1959

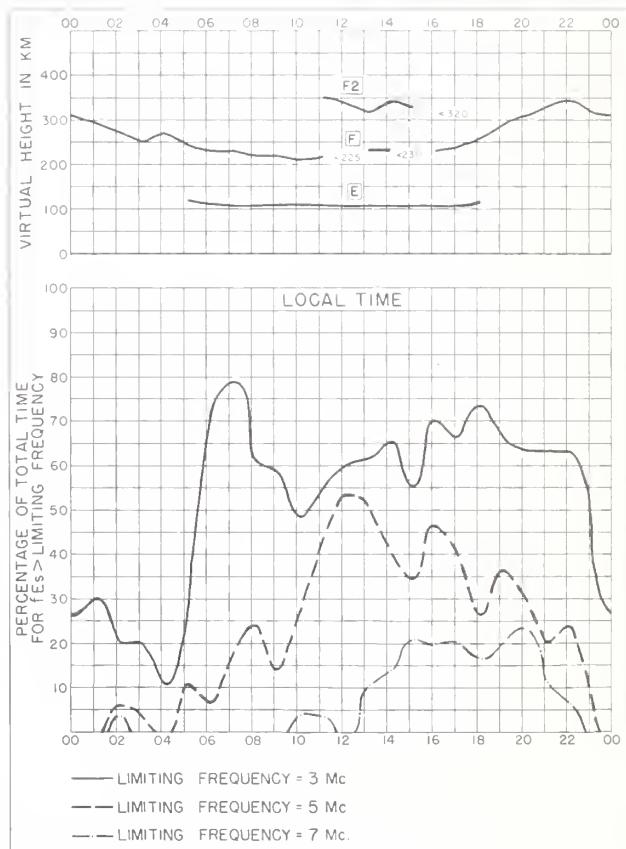
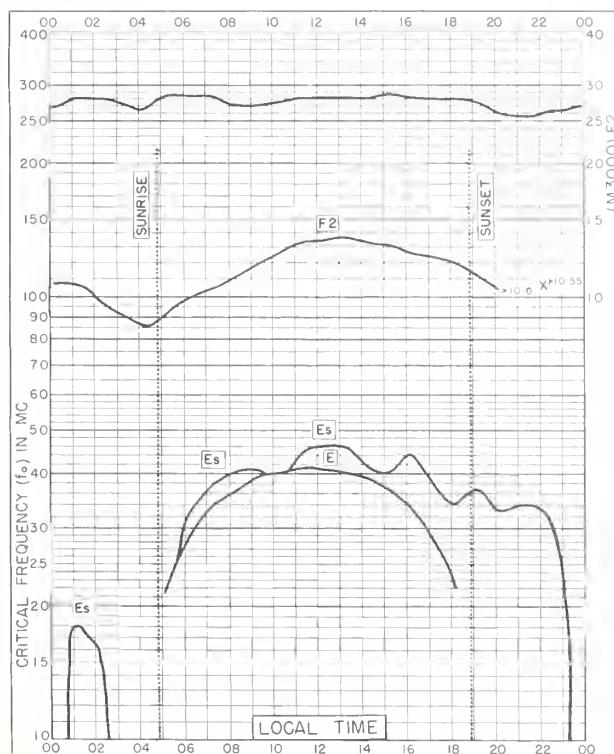
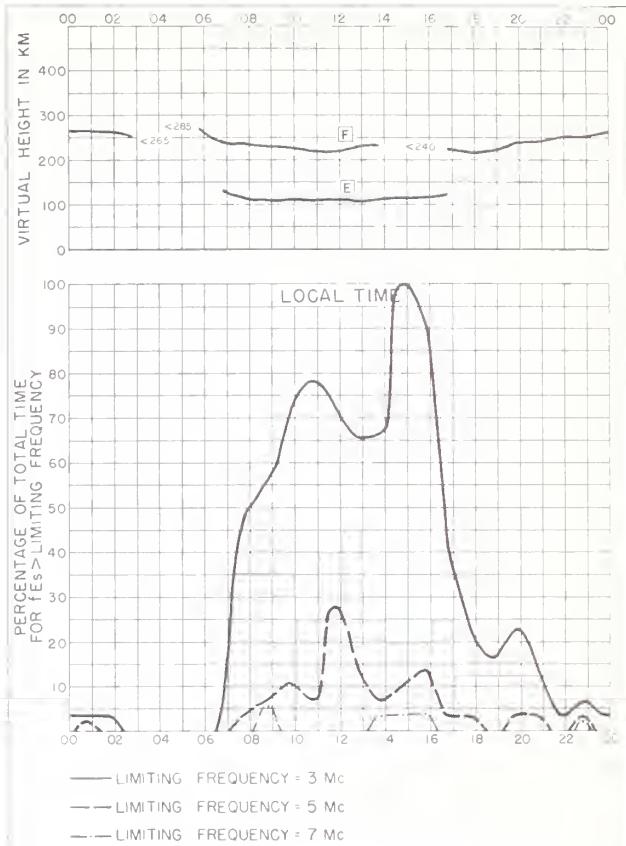




Fig. 53. BOGOTA, COLOMBIA  
4.5°N, 74.2°W OCTOBER 1959

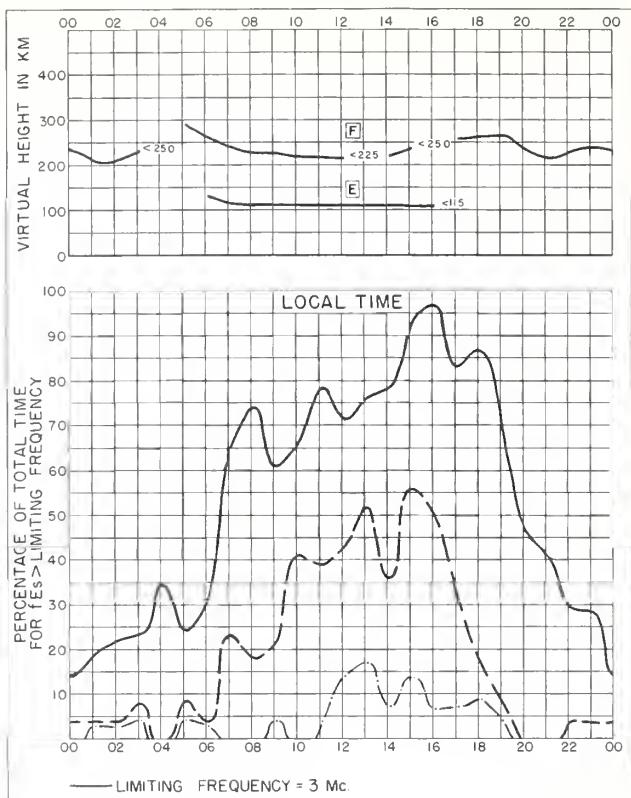


Fig. 54. BOGOTA, COLOMBIA OCTOBER 1959

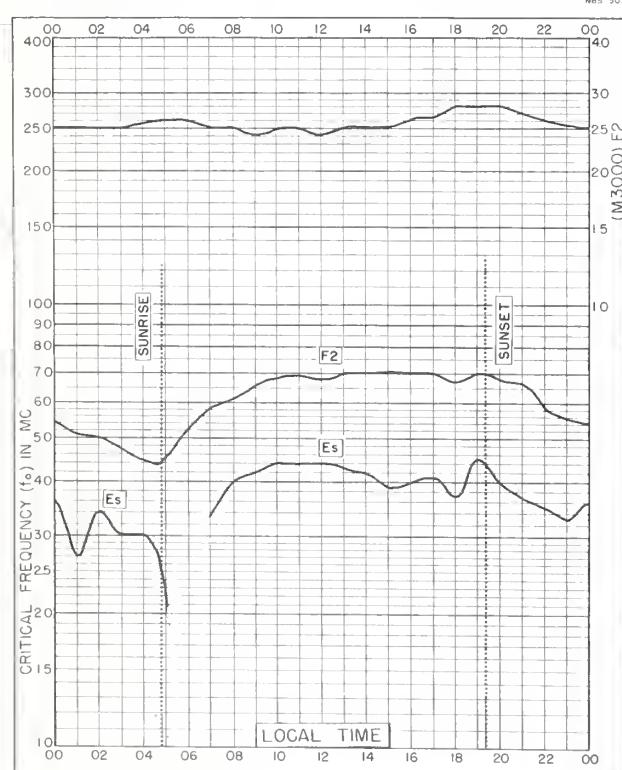


Fig. 55. BOULDER, COLORADO  
40.0°N, 105.3°W JULY 1959

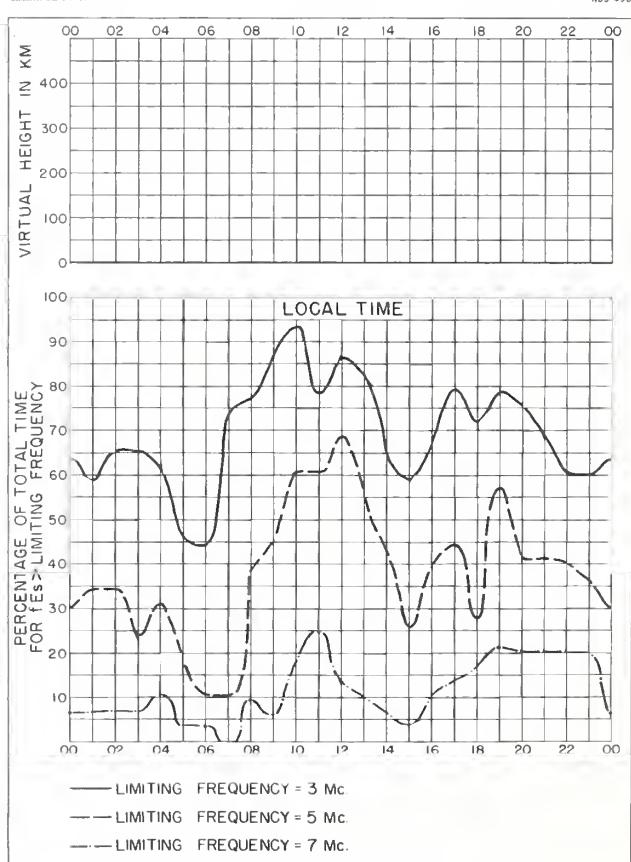
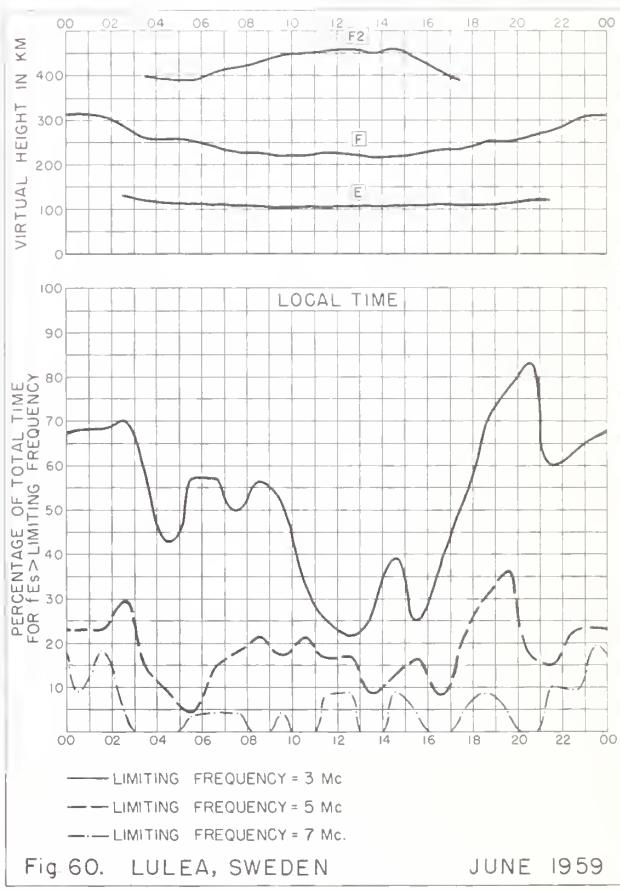
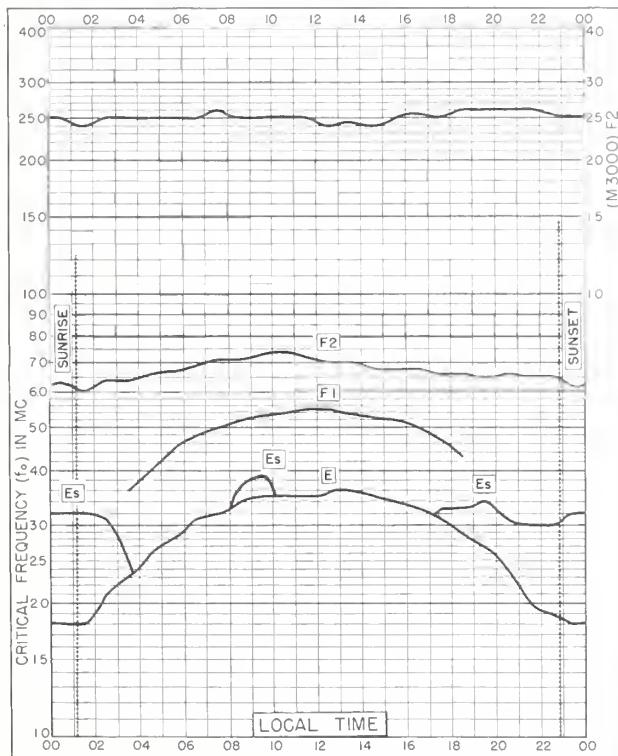
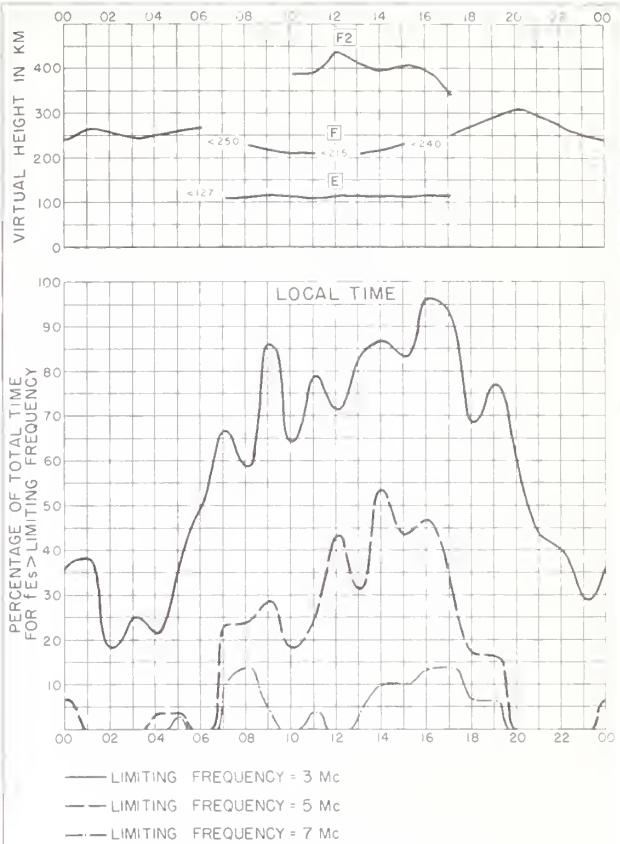
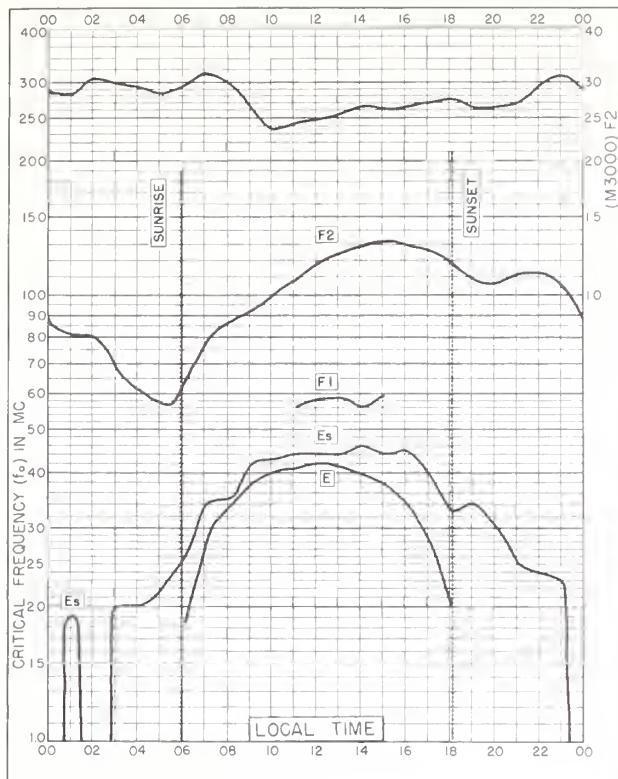
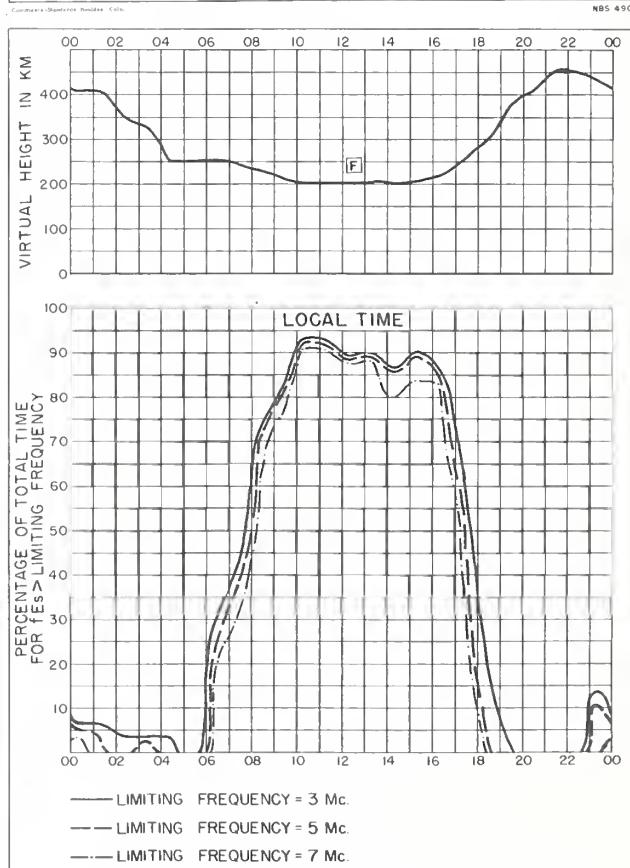
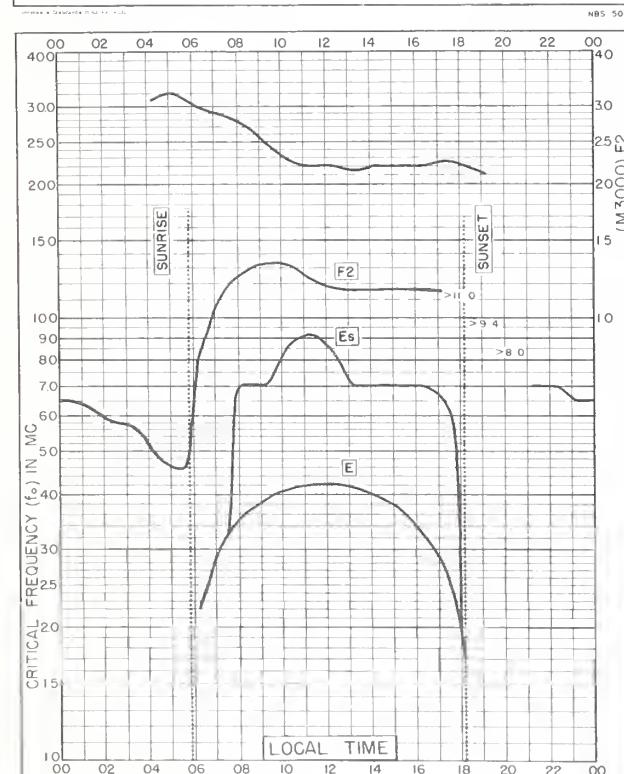
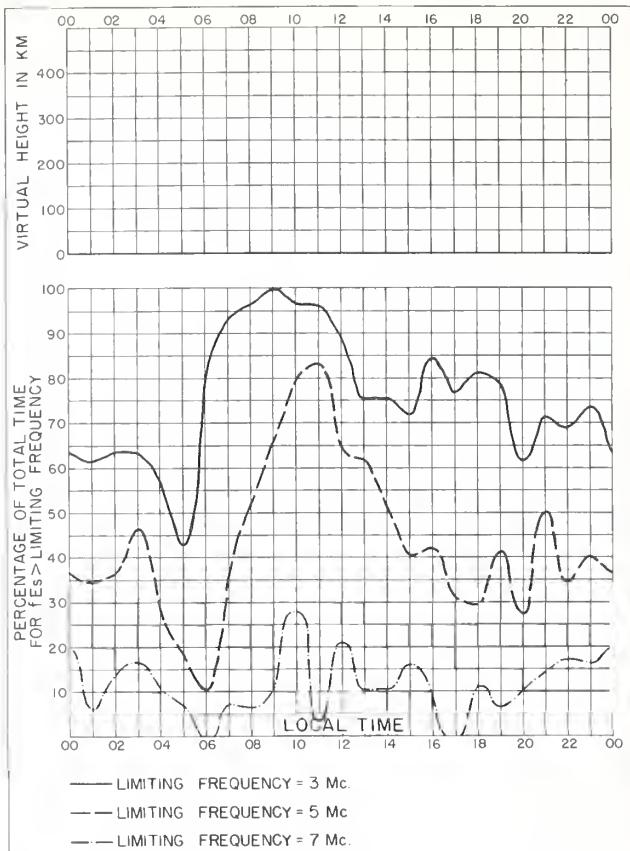
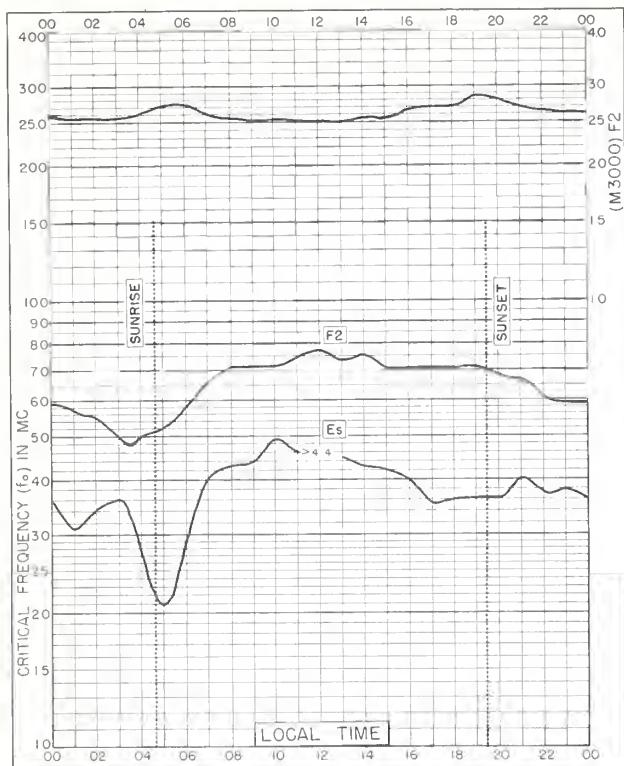


Fig. 56. BOULDER, COLORADO JULY 1959





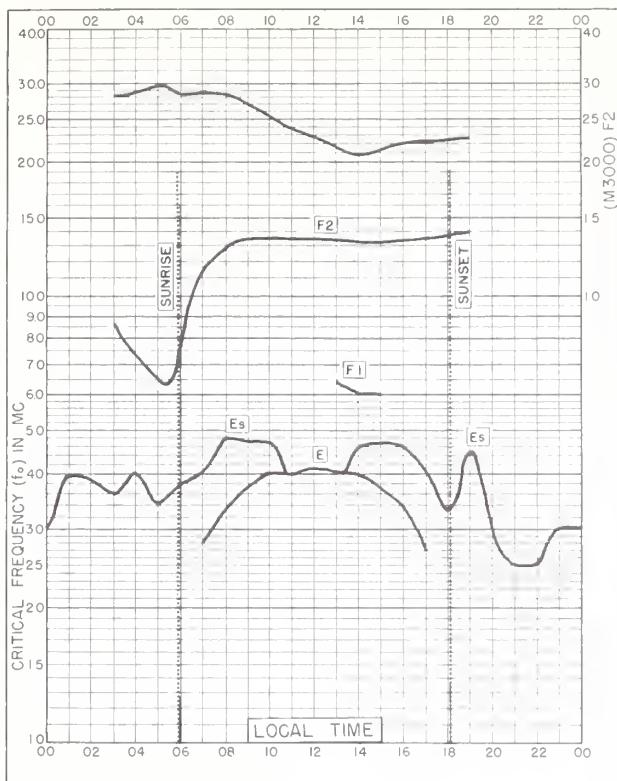


Fig. 65. BUNIA, BELGIAN CONGO  
1.5°N, 30.2°E

JUNE 1959

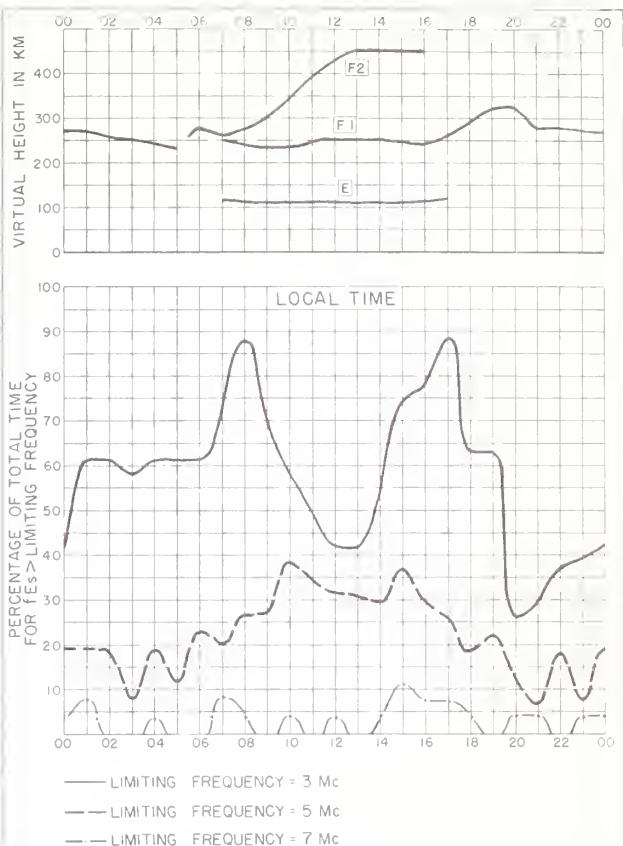


Fig. 66 BUNIA, BELGIAN CONGO JUNE 1959

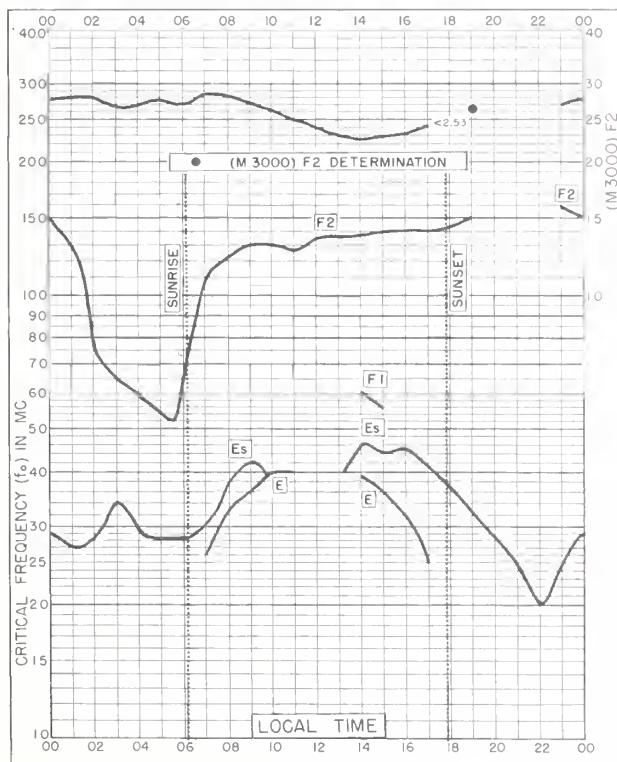


Fig. 67. LEOPOLDVILLE, BELGIAN CONGO  
4.4°S, 15.2°E

JUNE 1959

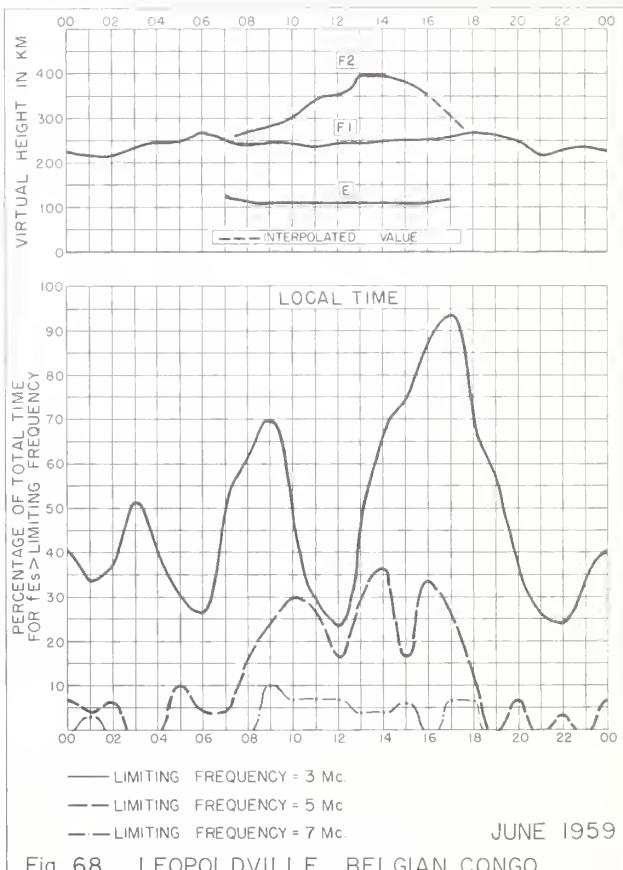
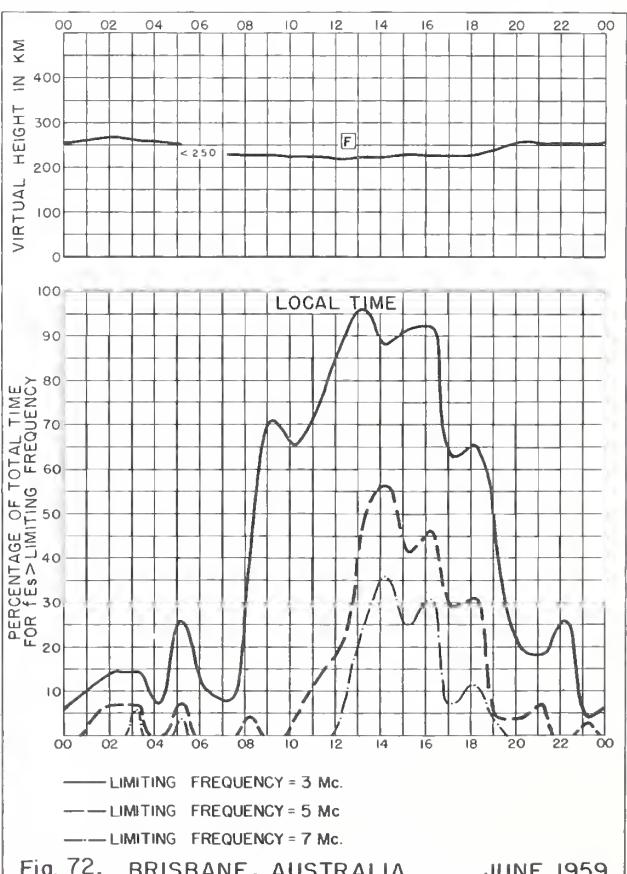
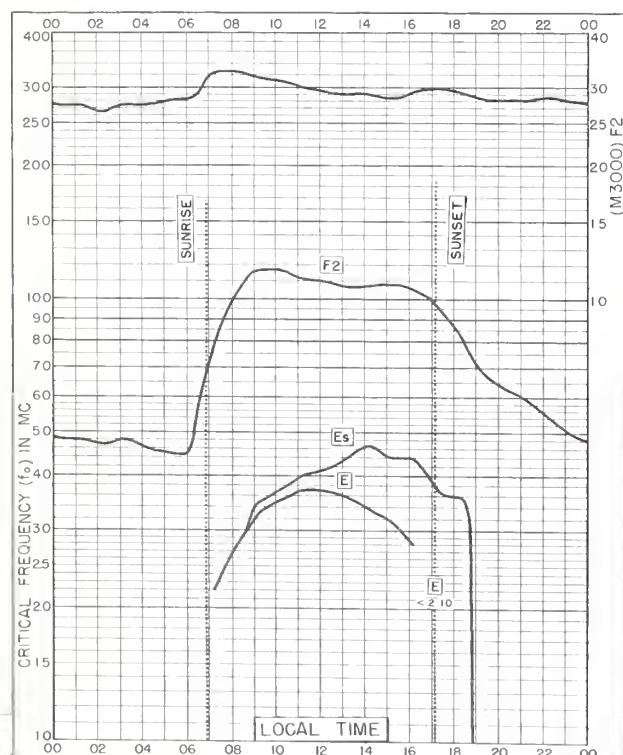
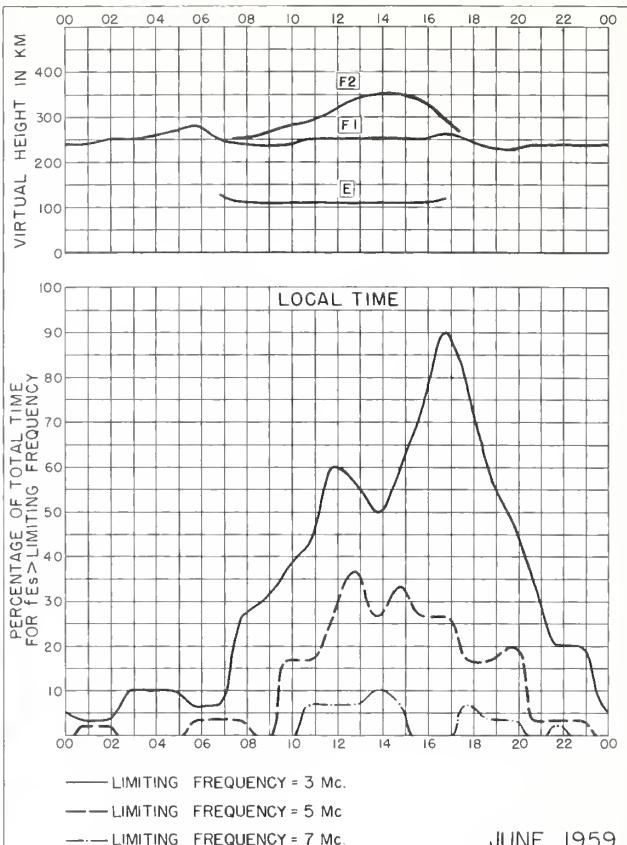
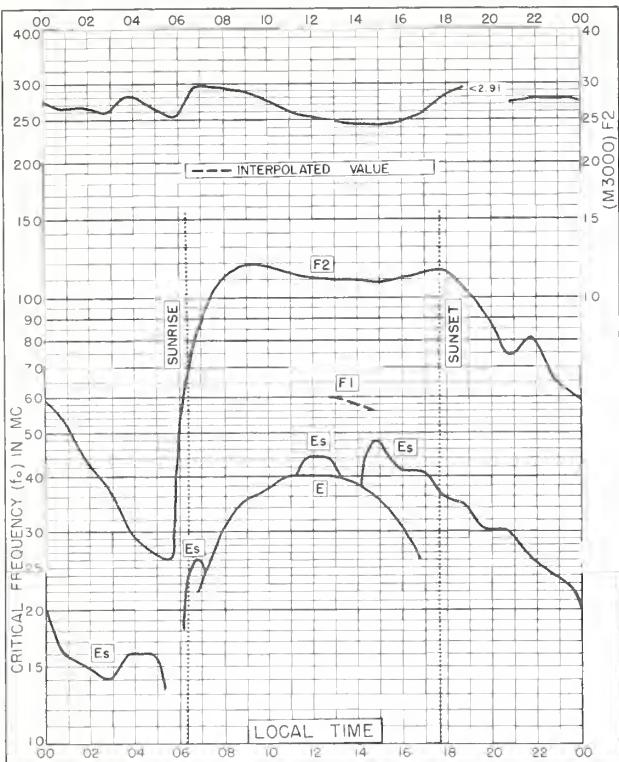
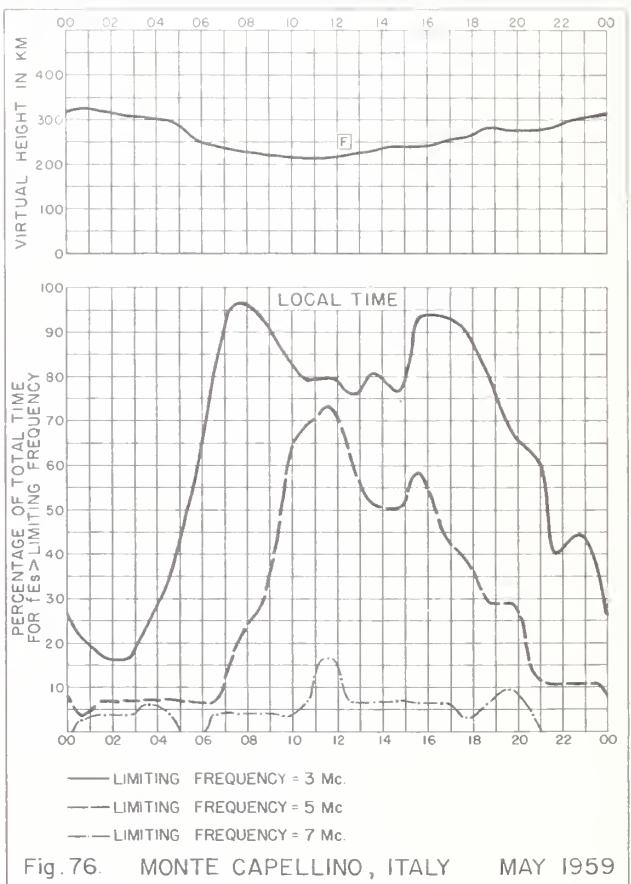
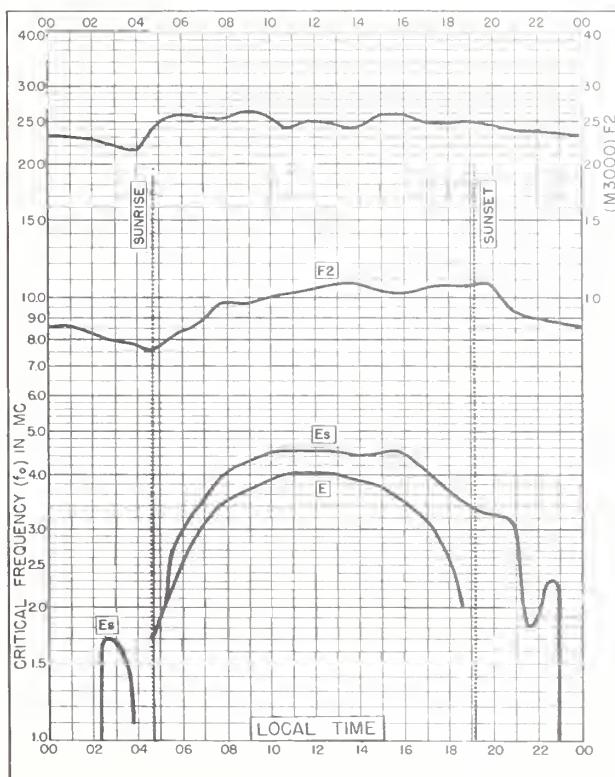
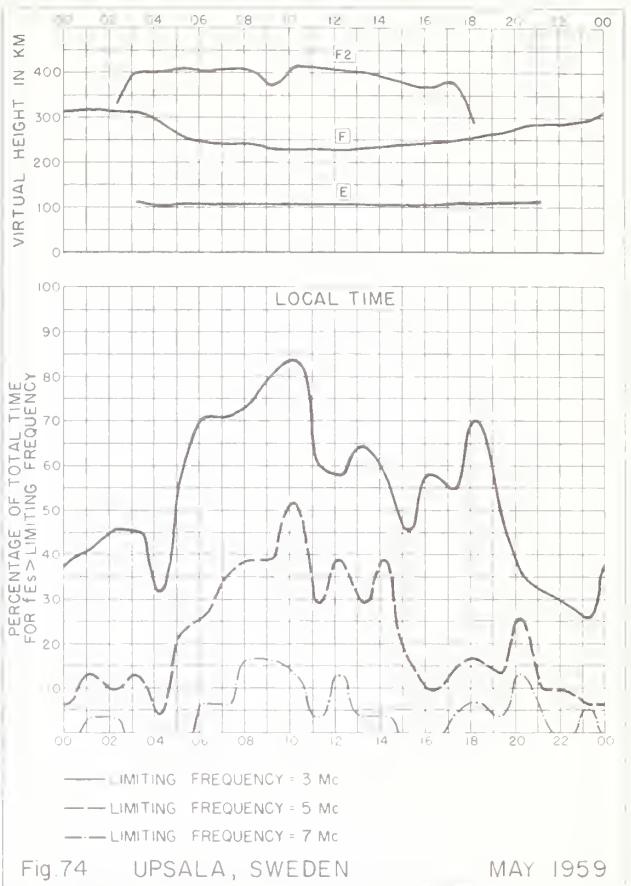
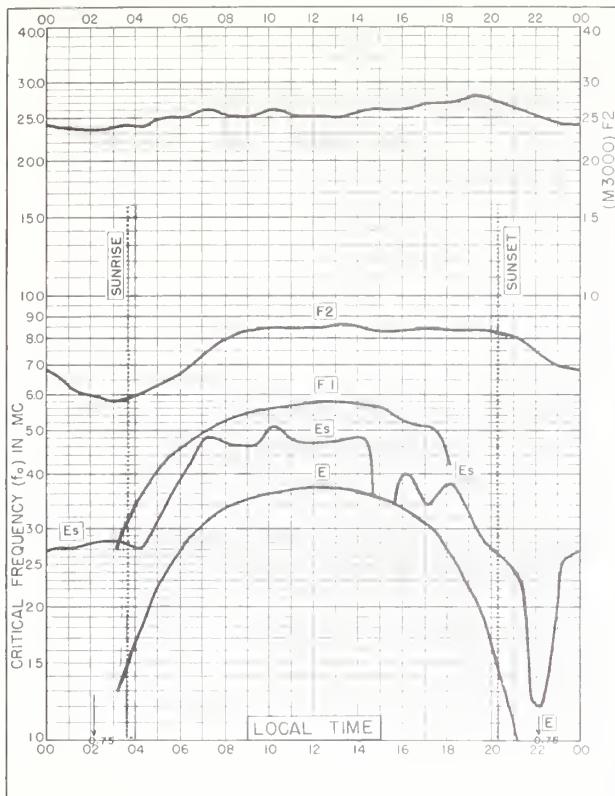
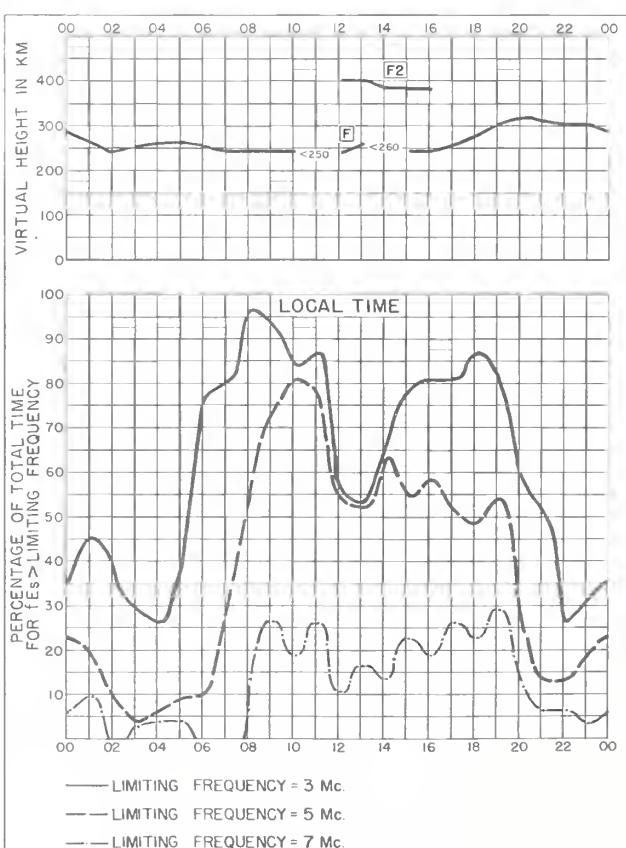
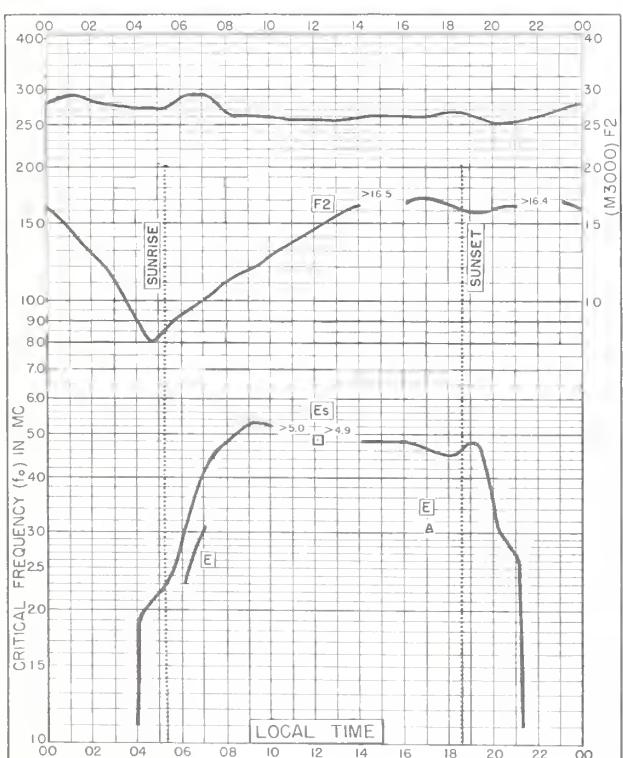
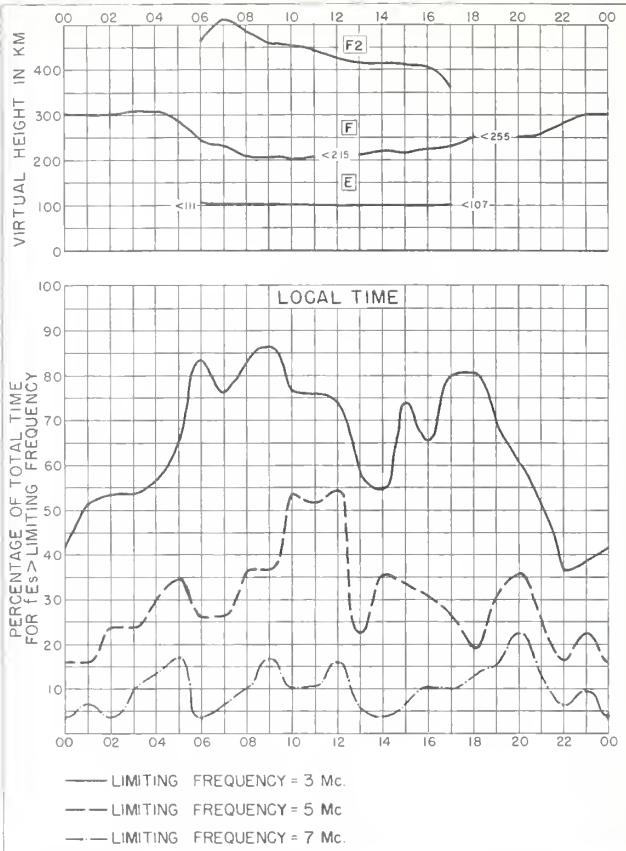
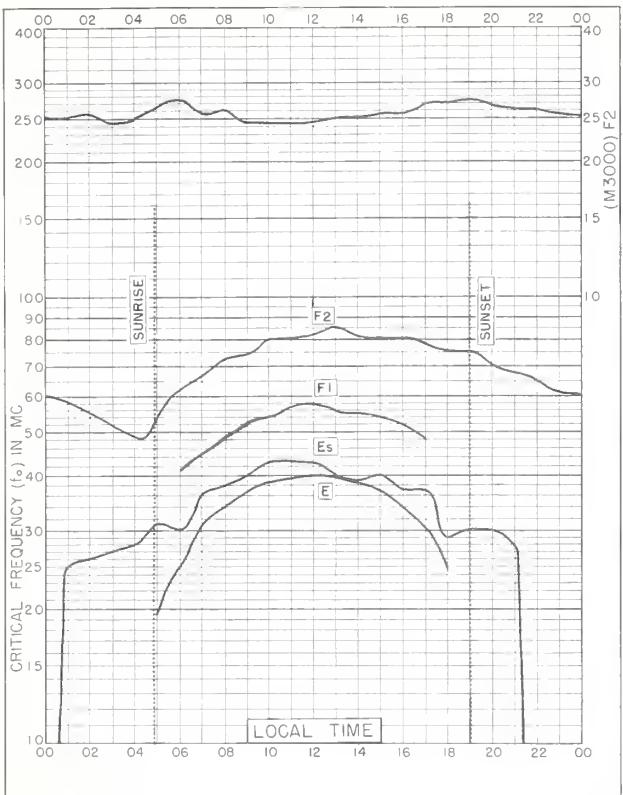


Fig. 68 LEOPOLDVILLE, BELGIAN CONGO

JUNE 1959







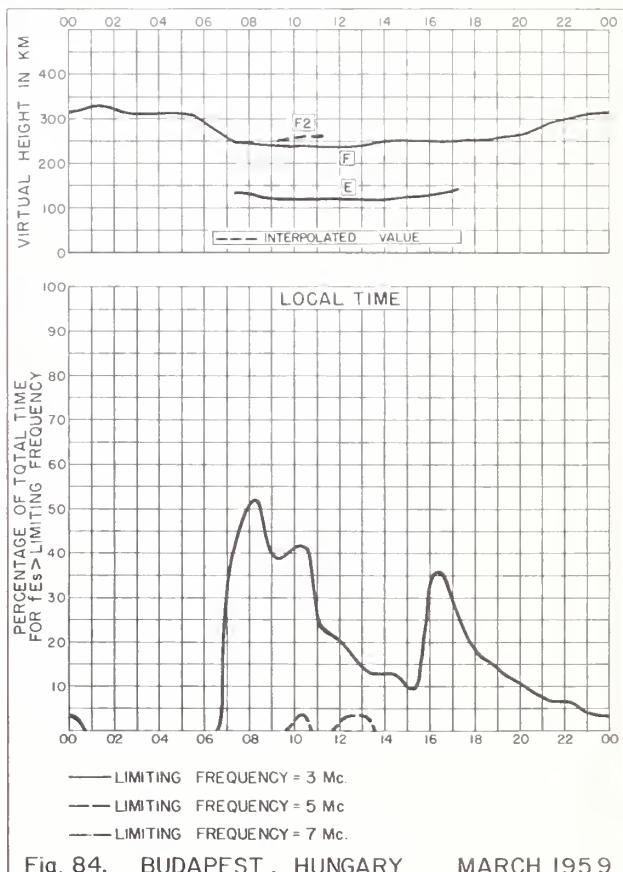
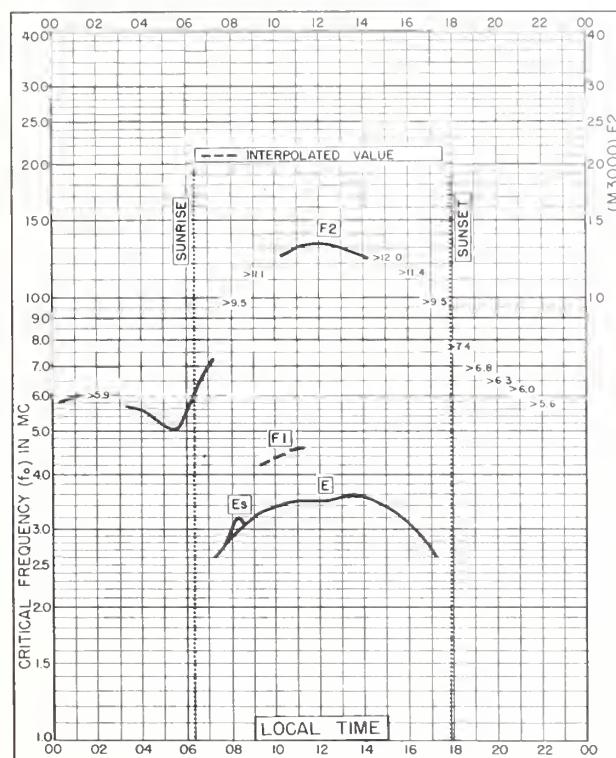
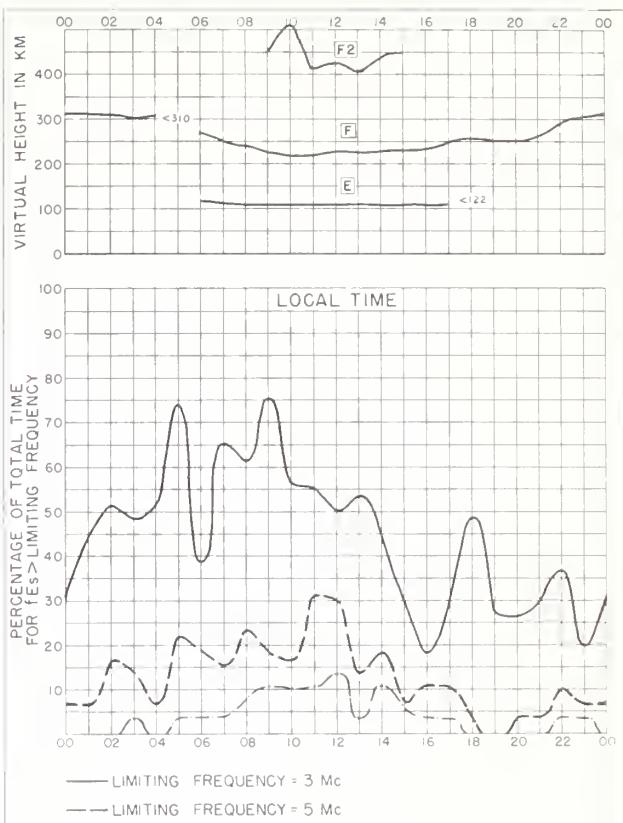
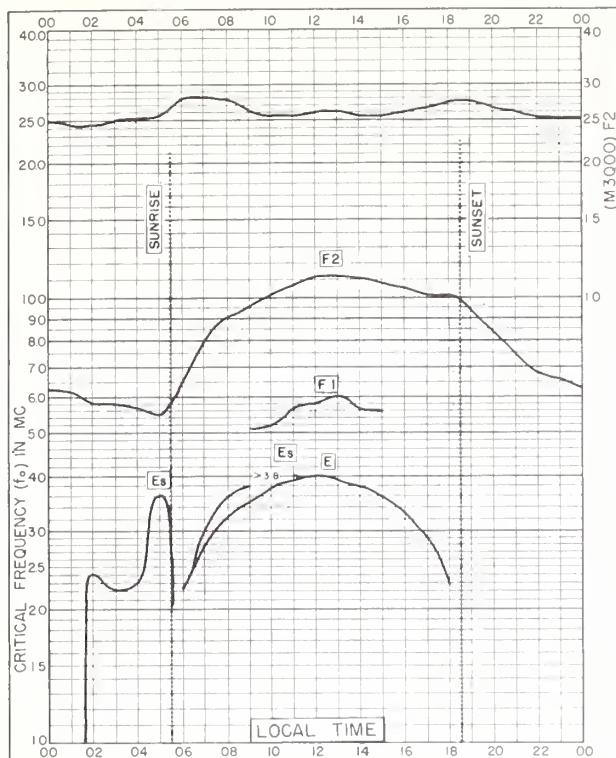




Fig. 85. BOULDER, COLORADO  
40.0°N, 105.3°W

MARCH 1959

NBS 503

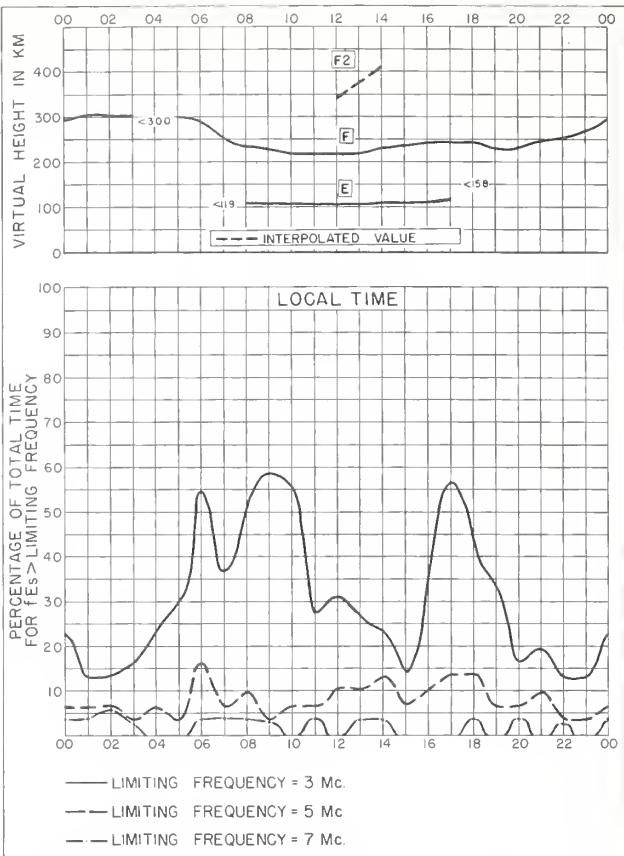


Fig. 86. BOULDER, COLORADO

MARCH 1959

NBS 490



Fig. 87. BOULDER, COLORADO  
40.0°N, 105.3°W

FEBRUARY 1959

NBS 503

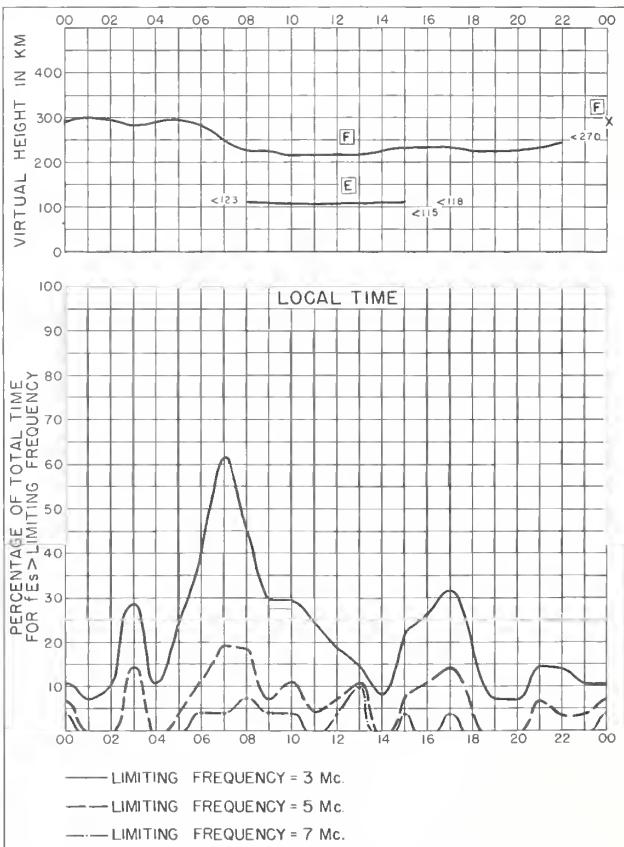


Fig. 88. BOULDER, COLORADO FEBRUARY 1959

NBS 490



Fig. 89. BOULDER, COLORADO  
40.0°N, 105.3°W JANUARY 1959

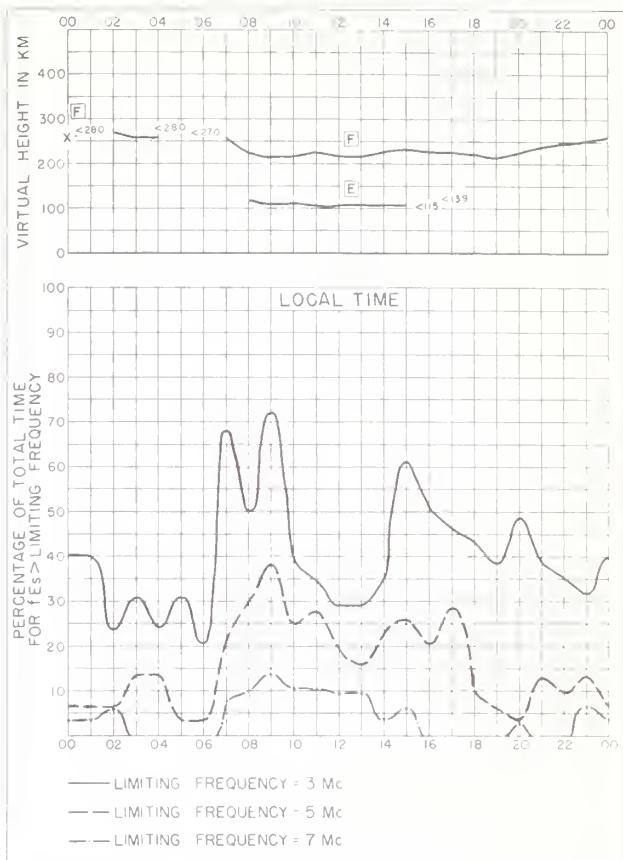


Fig. 90. BOULDER, COLORADO JANUARY 1959

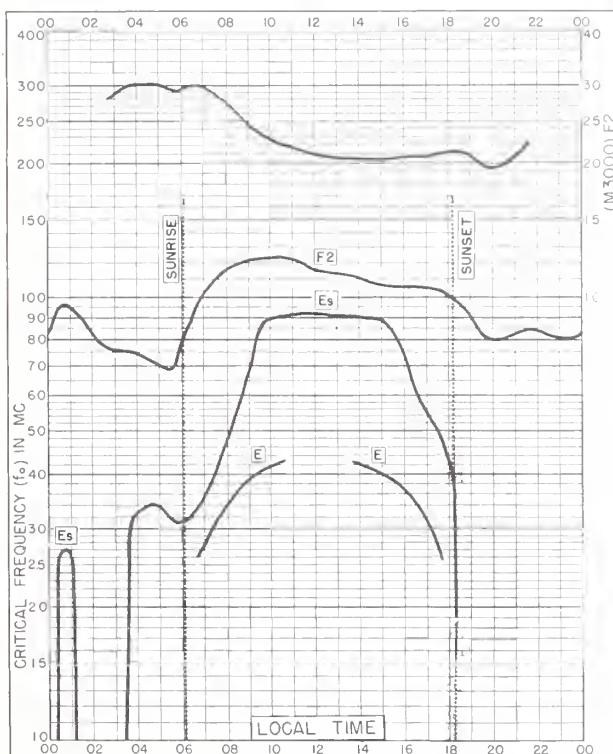


Fig. 91. NATAL, BRAZIL  
5.3°S, 35.1°W JANUARY 1959

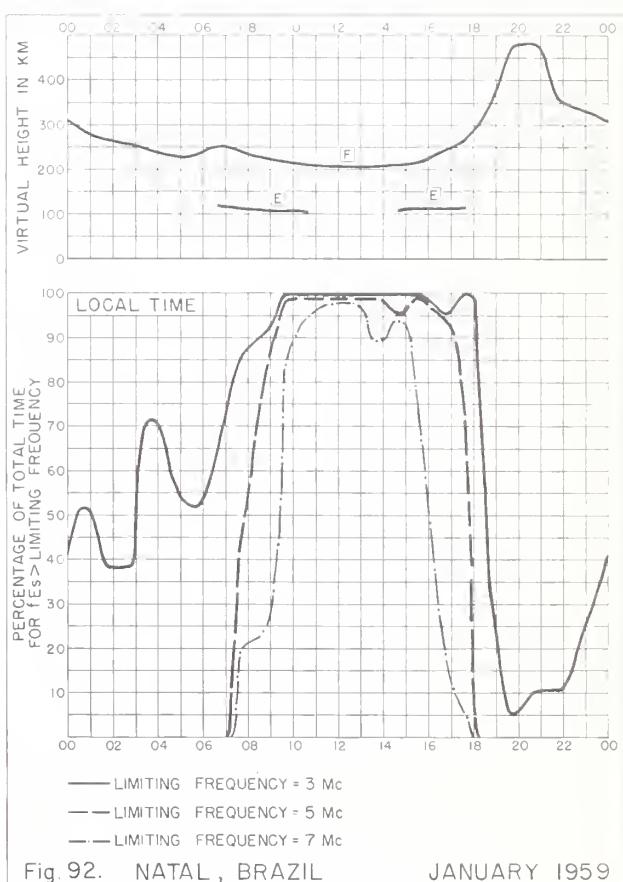


Fig. 92. NATAL, BRAZIL JANUARY 1959

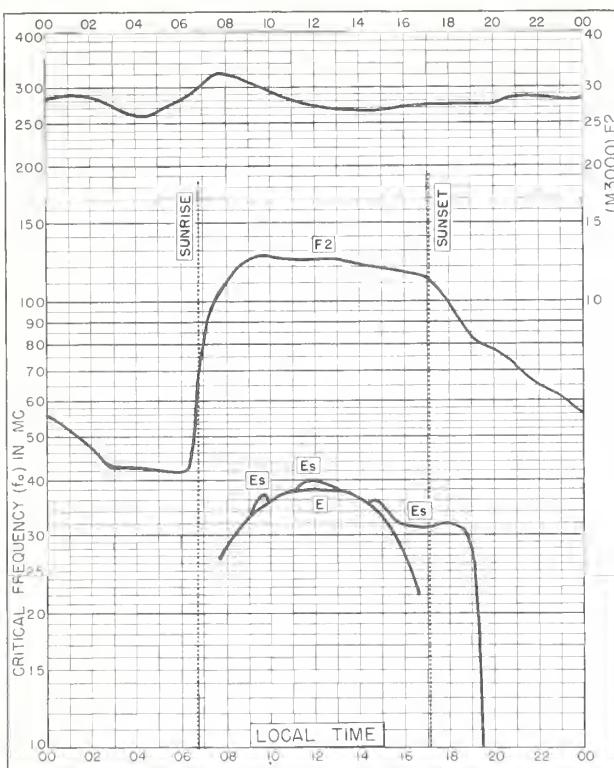


Fig. 93. CAPE CANAVERAL, FLORIDA  
28.4°N, 80.6°W DECEMBER 1958

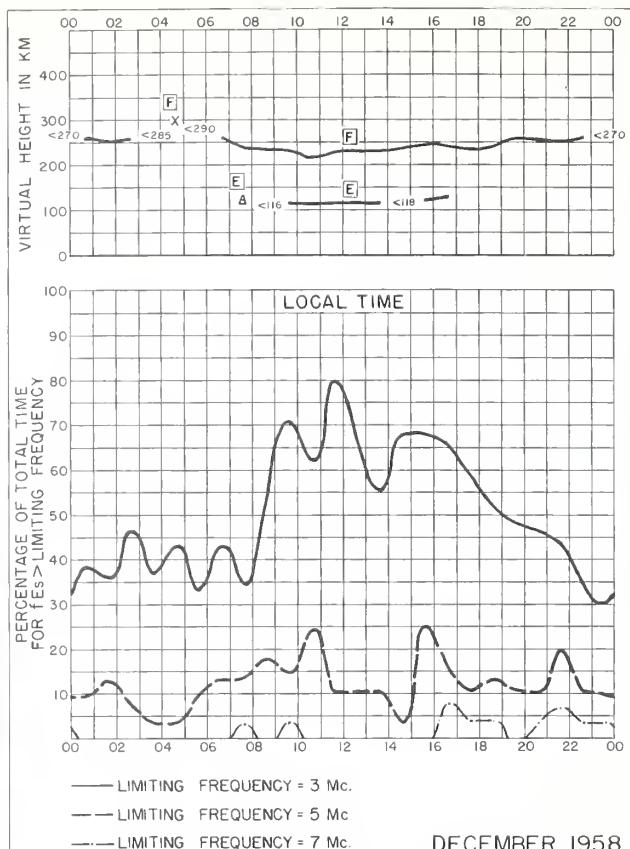


Fig. 94. CAPE CANAVERAL, FLORIDA DECEMBER 1958

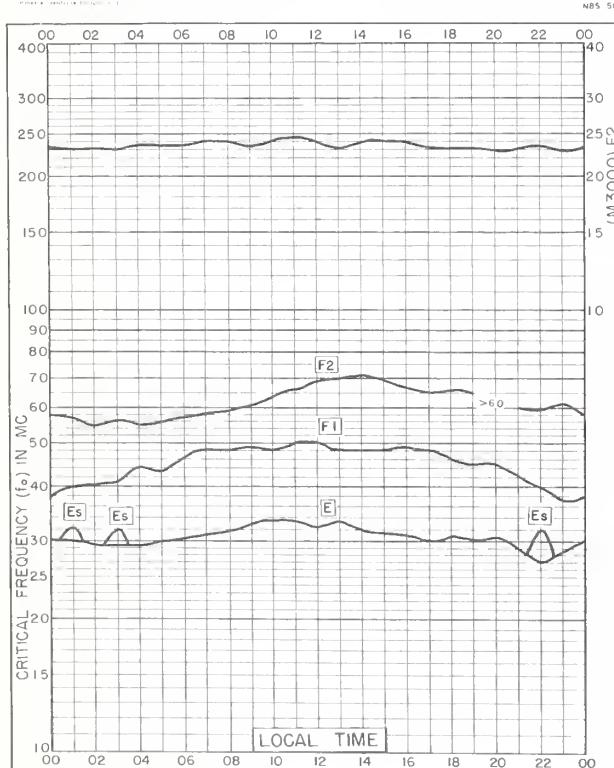


Fig. 95. BYRD STATION  
80.0°S, 120.0°W DECEMBER 1958

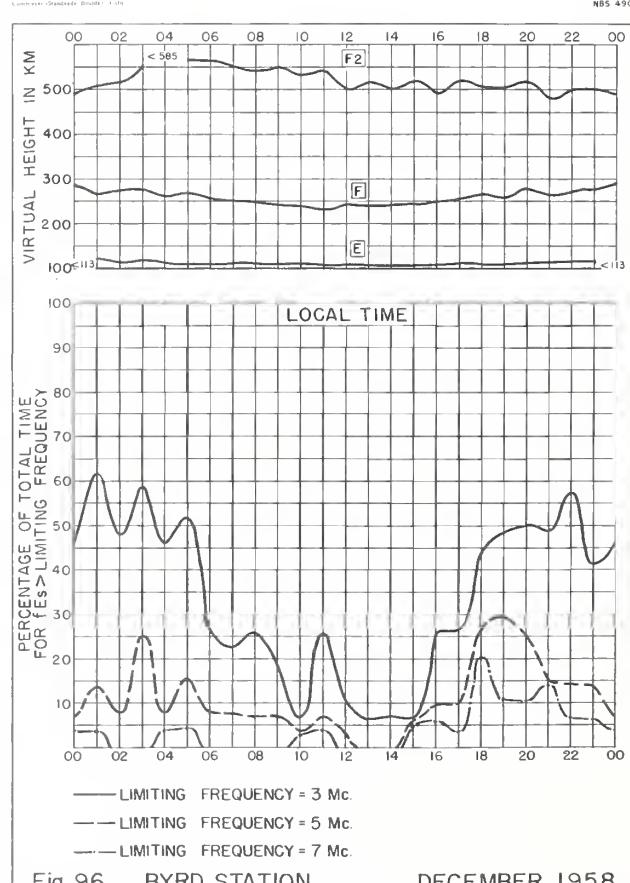


Fig. 96. BYRD STATION DECEMBER 1958

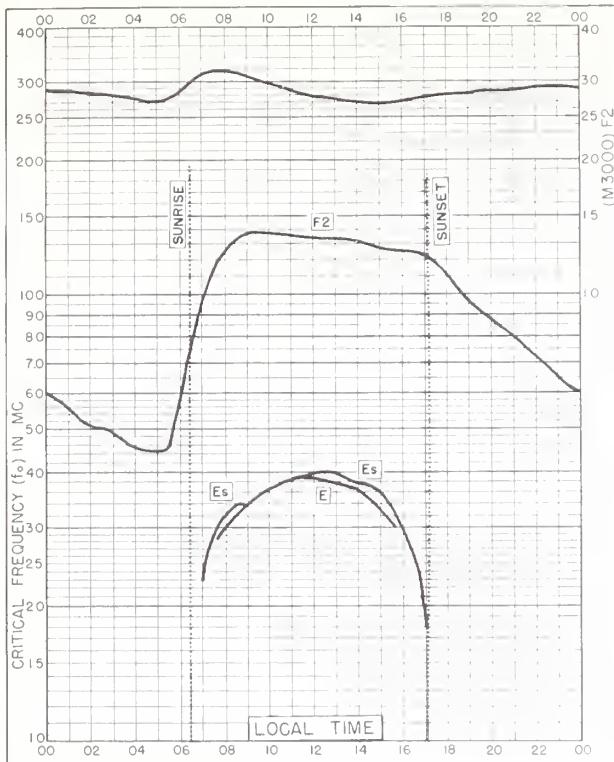
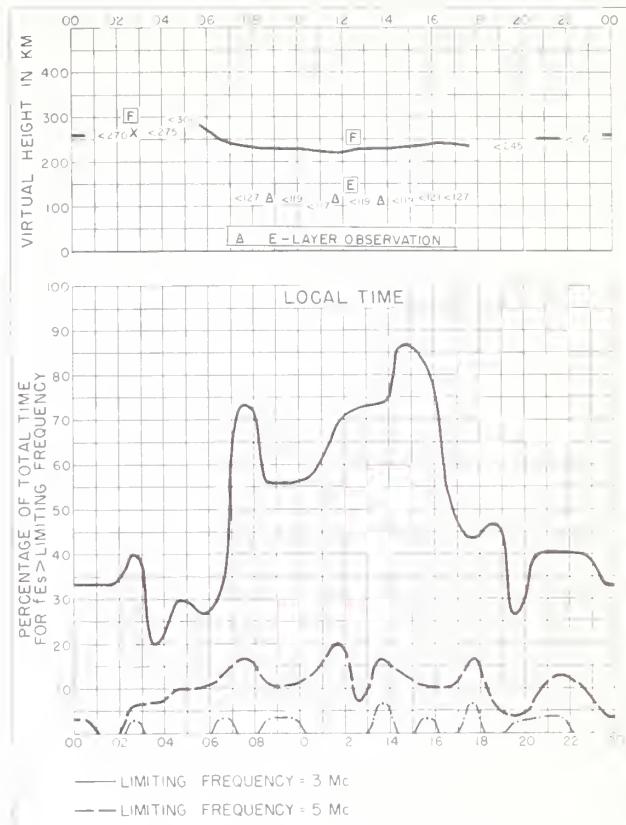


Fig. 97. CAPE CANAVERAL, FLORIDA  
28.4°N, 80.6°W NOVEMBER 1958



NOVEMBER 1958

Fig. 98 CAPE CANAVERAL, FLORIDA

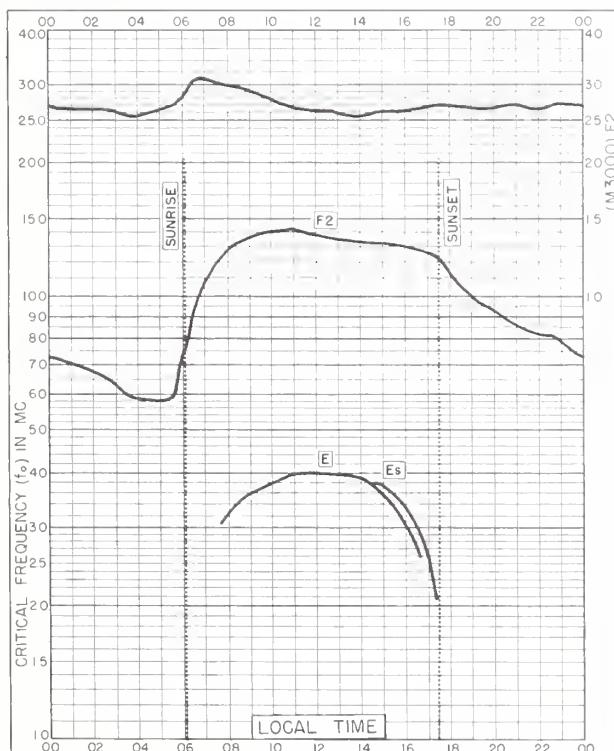
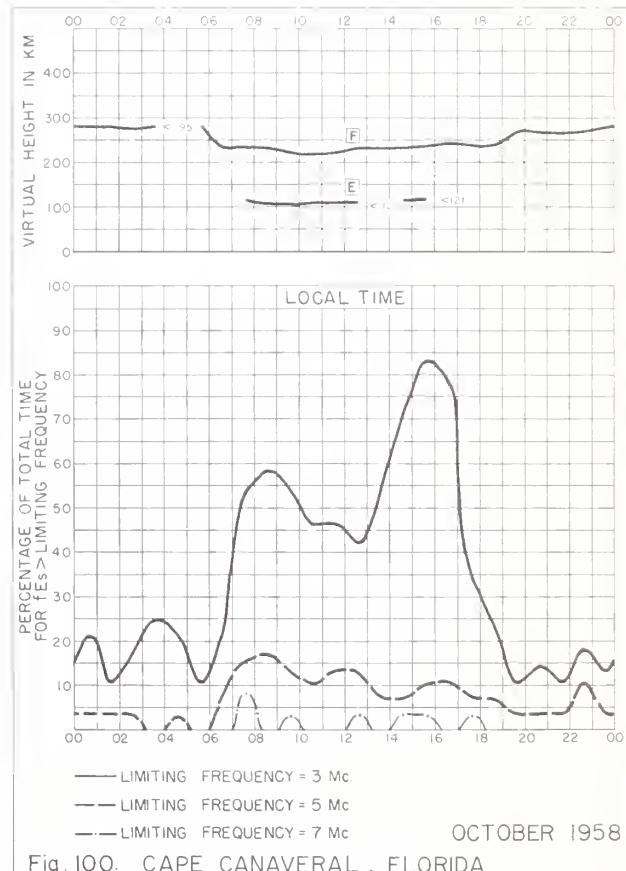


Fig. 99. CAPE CANAVERAL, FLORIDA  
28.4°N, 80.6°W OCTOBER 1958



OCTOBER 1958

Fig. 100. CAPE CANAVERAL, FLORIDA

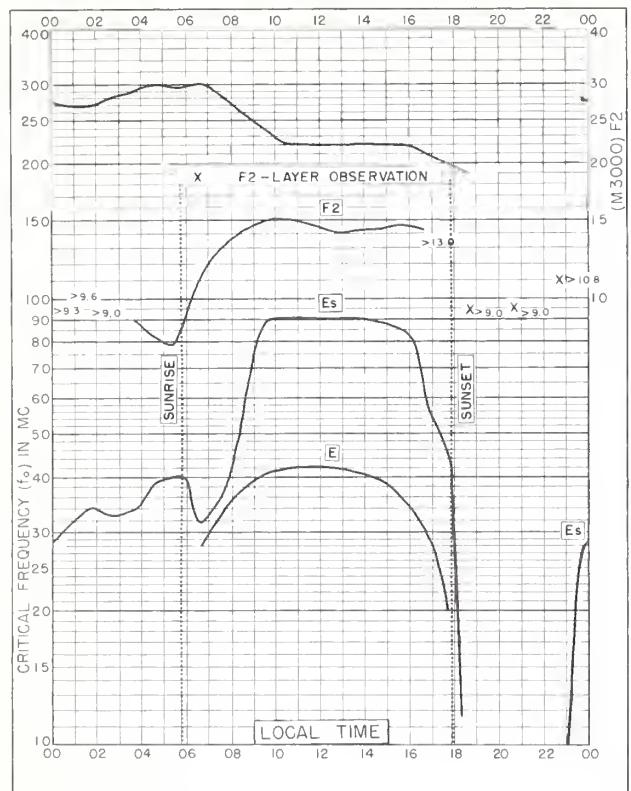


Fig. 101. NATAL, BRAZIL  
5.3°S, 35.1°W OCTOBER 1958

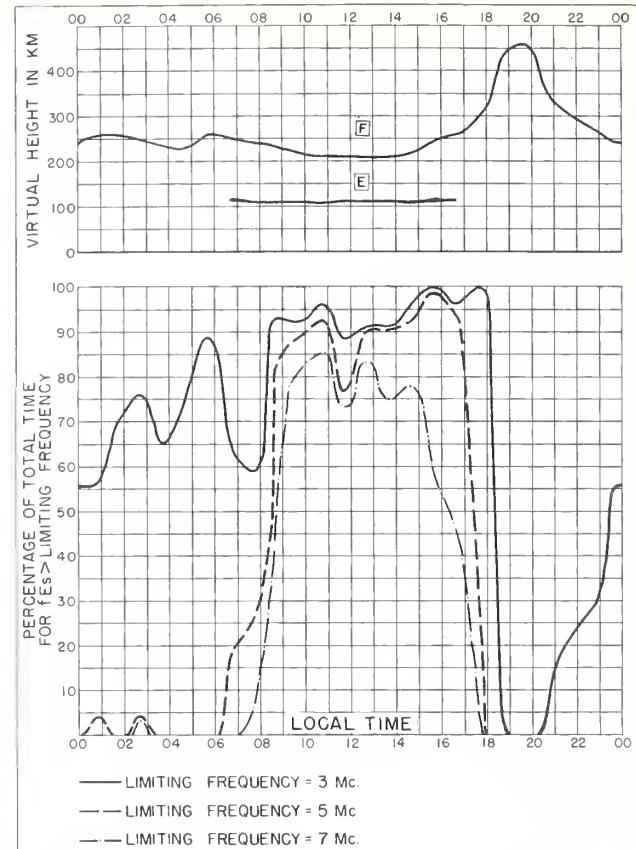


Fig. 102. NATAL, BRAZIL OCTOBER 1958

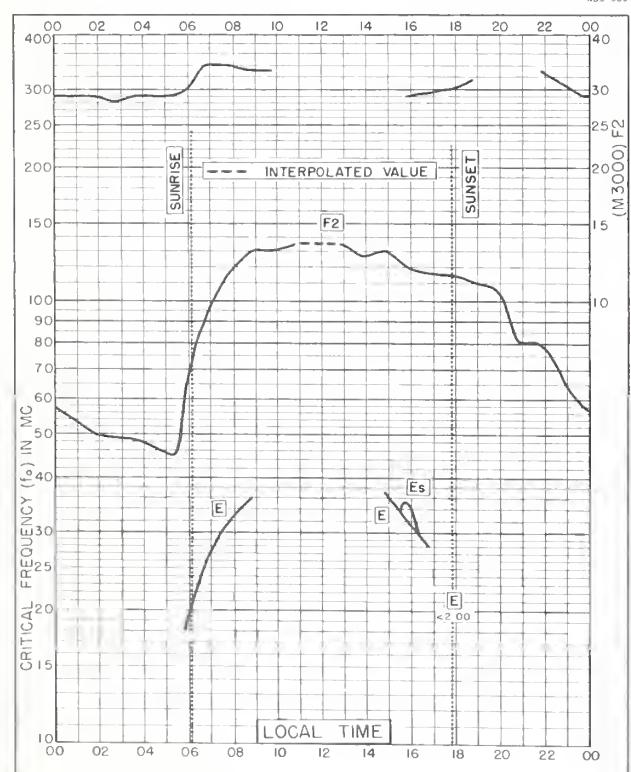


Fig. 103 GRAHAMSTOWN, UNION OF S. AFRICA  
33.3°S, 265°E SEPTEMBER 1958

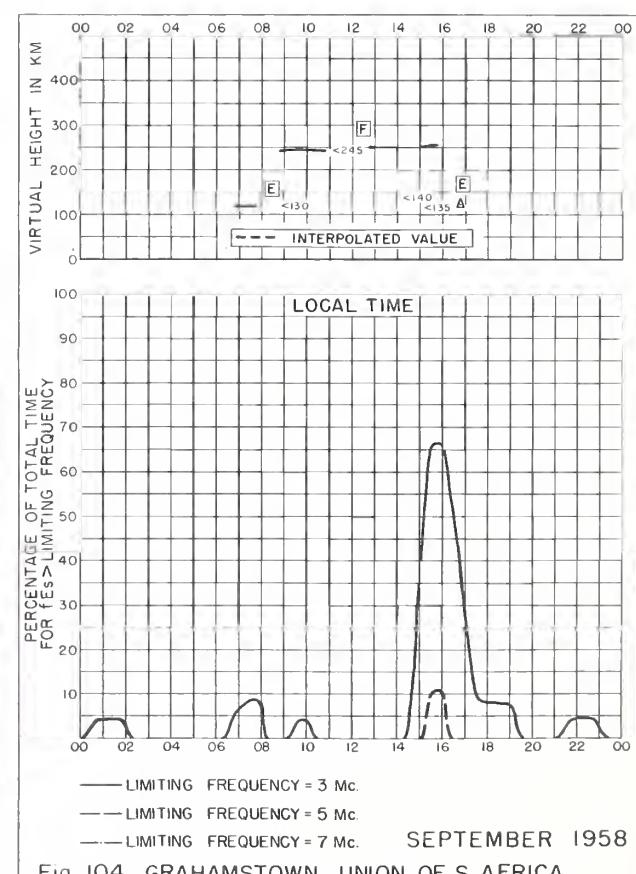


Fig. 104. GRAHAMSTOWN, UNION OF S. AFRICA SEPTEMBER 1958

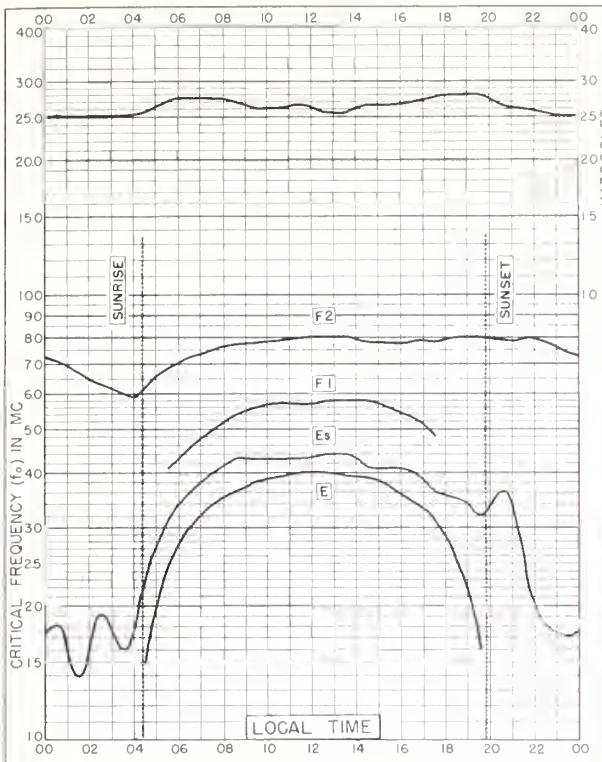


Fig. 105. FREIBURG, GERMANY  
48.1° N 7.6° E JULY 1958

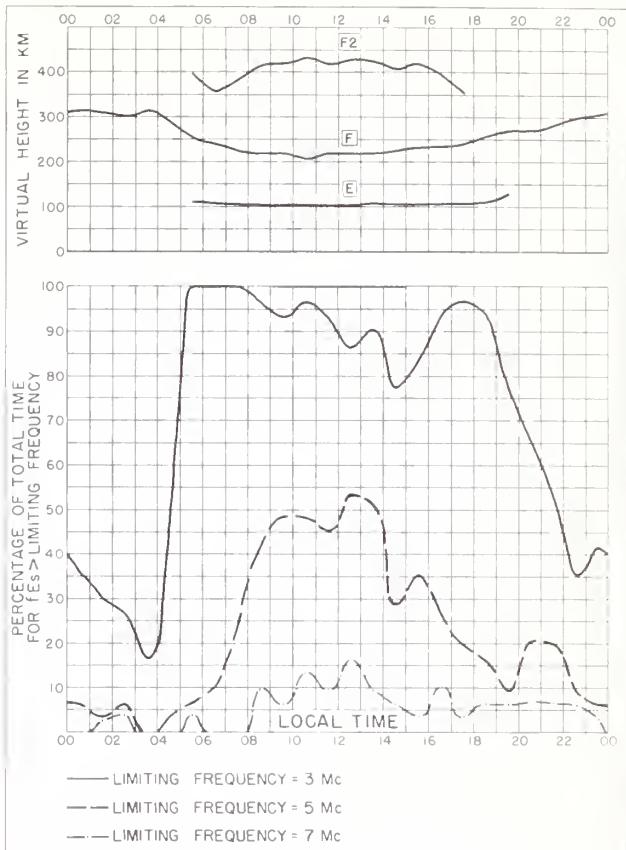


Fig. 106. FREIBURG, GERMANY JULY 1958

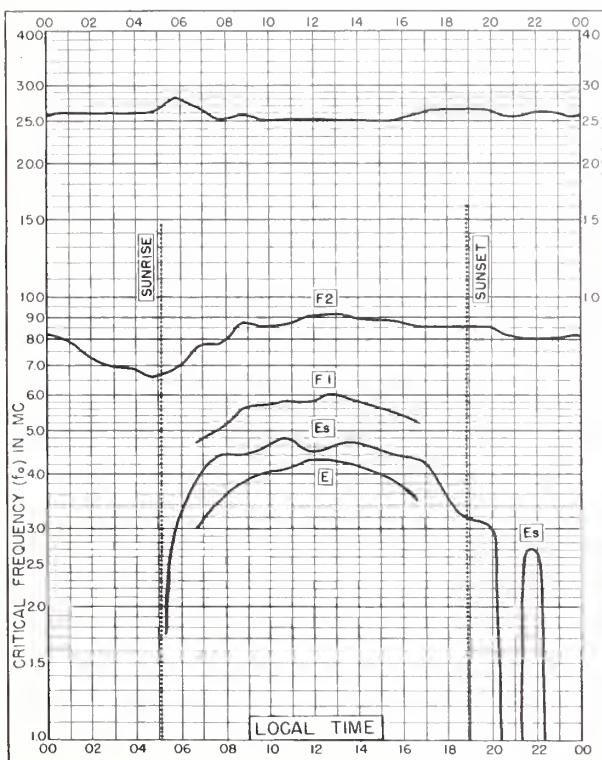


Fig. 107. CAPE CANAVERAL, FLORIDA  
28.4° N, 80.6° W JUNE 1958

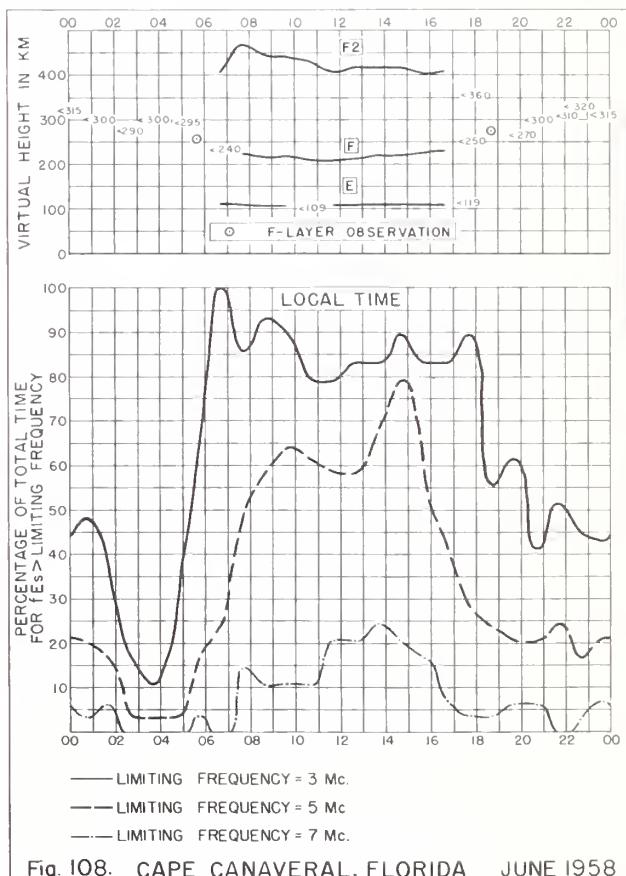


Fig. 108. CAPE CANAVERAL, FLORIDA JUNE 1958



Fig. 109. CONCEPCION, CHILE  
36.6°S, 73.0°W

JUNE 1958

NBS 503

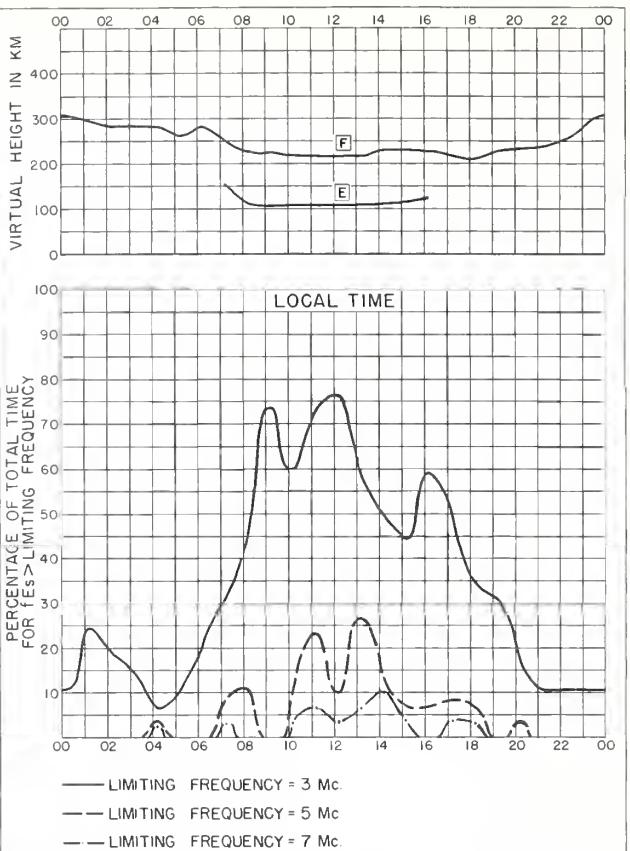


Fig. 110. CONCEPCION, CHILE

JUNE 1958

NBS 490

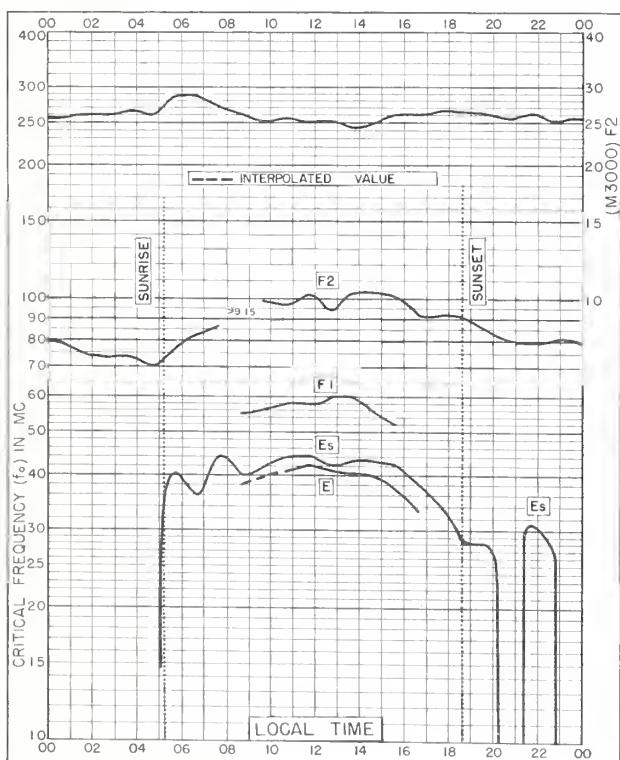


Fig. 111. CAPE CANAVERAL, FLORIDA  
28.4°N, 80.6°W

MAY 1958

NBS 503

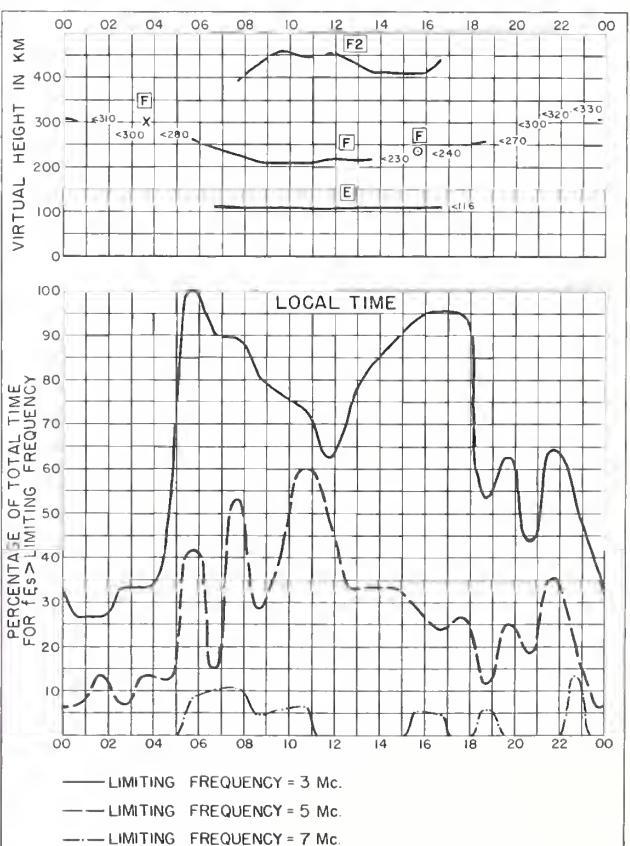


Fig. 112. CAPE CANAVERAL, FLORIDA MAY 1958

NBS 490

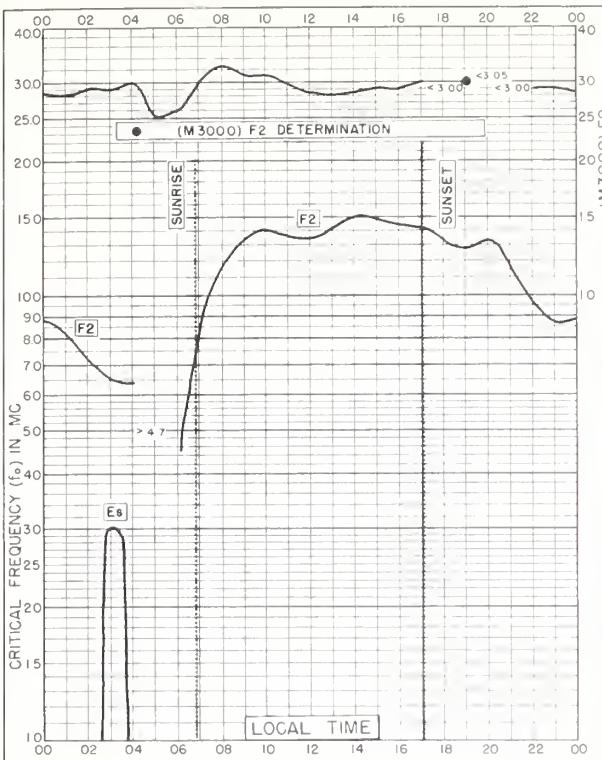


Fig. II3. BUENOS AIRES, ARGENTINA  
34.5° S, 58.5° W      MAY 1958

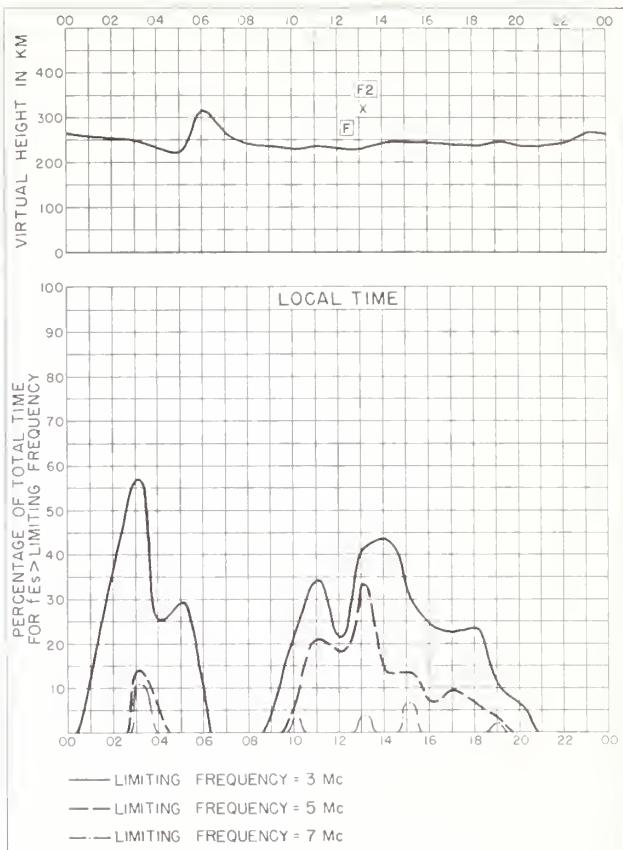


Fig. II4. BUENOS AIRES, ARGENTINA      MAY 1958

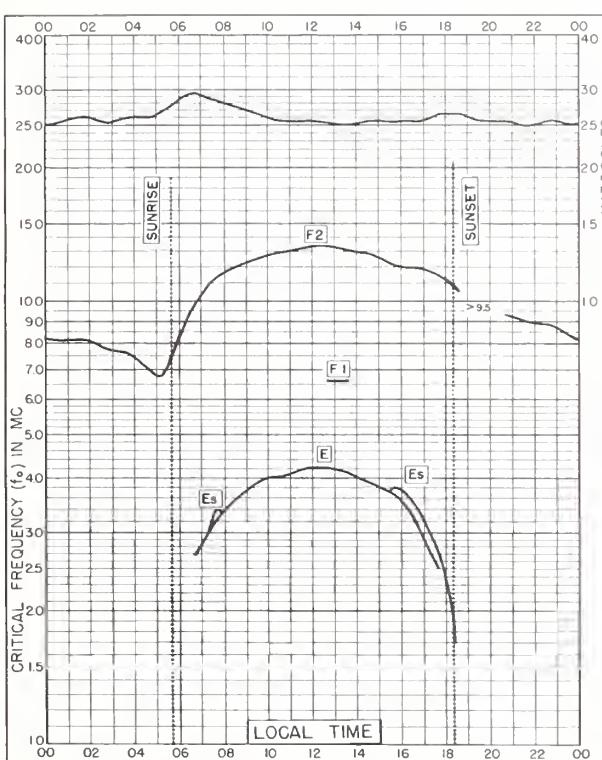


Fig. II5. CAPE CANAVERAL, FLORIDA  
28.4° N, 80.6° W      APRIL 1958

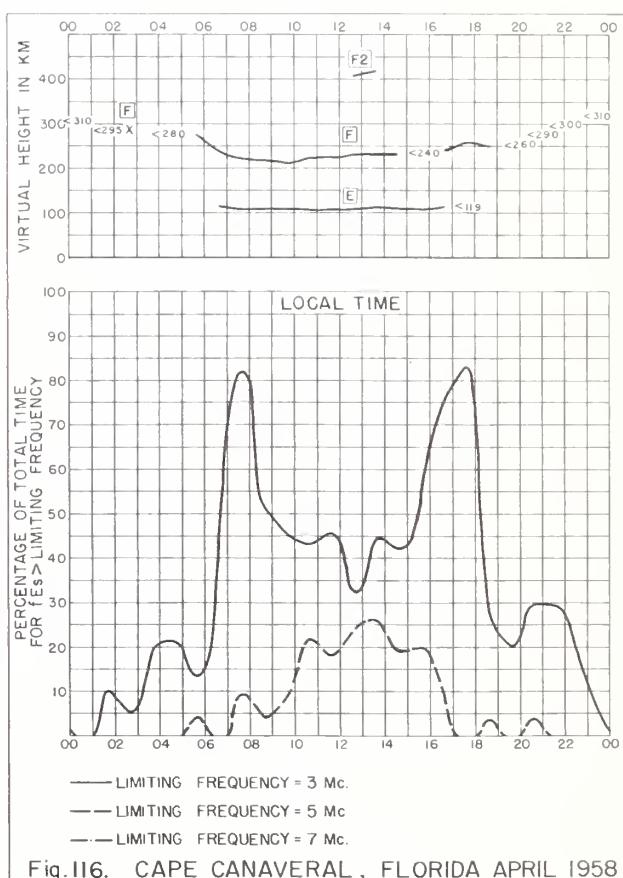


Fig. II6. CAPE CANAVERAL, FLORIDA APRIL 1958

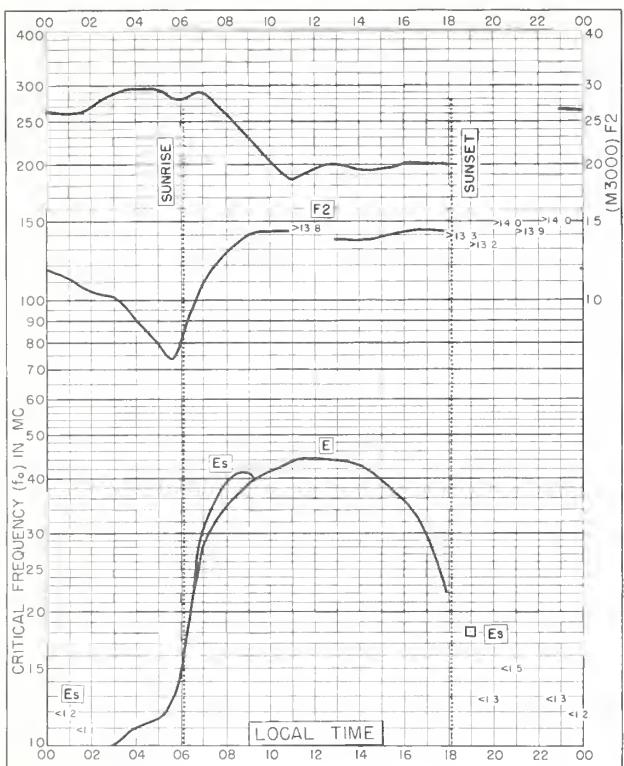


Fig. II7. SINGAPORE, BRITISH MALAYA  
 1.3°N, 103.8°E MARCH 1958

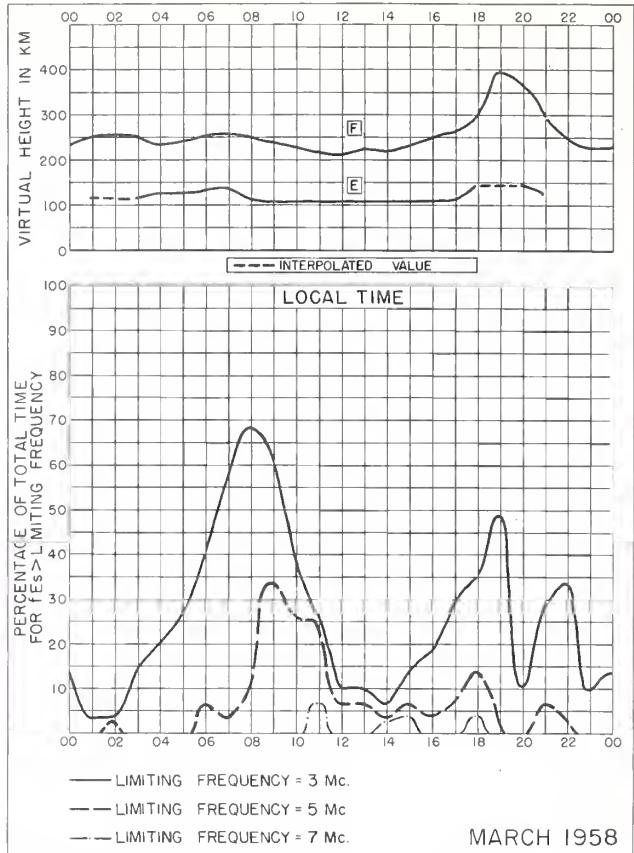


Fig. II8. SINGAPORE, BRITISH MALAYA

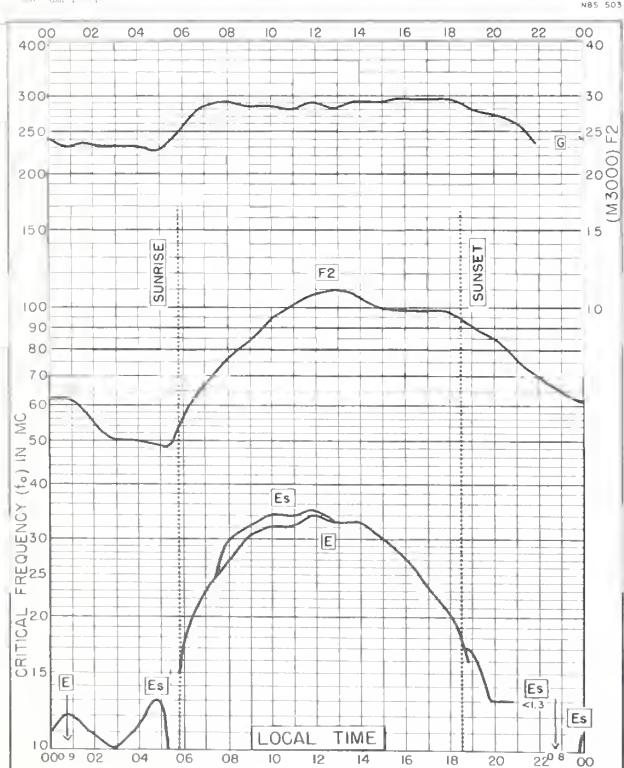


Fig. II9. PORT LOCKROY  
 64.8°S, 63.5°W MARCH 1958

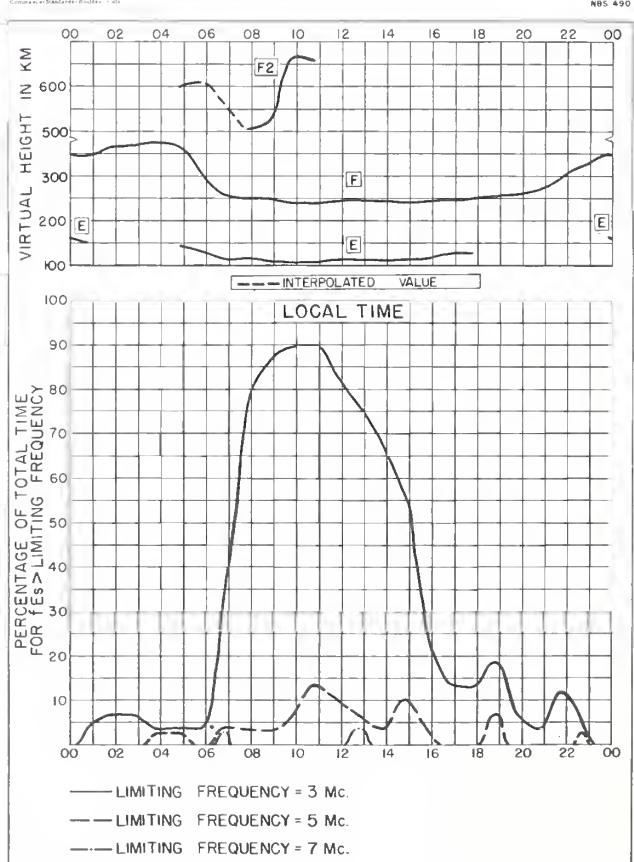


Fig. I20. PORT LOCKROY MARCH 1958

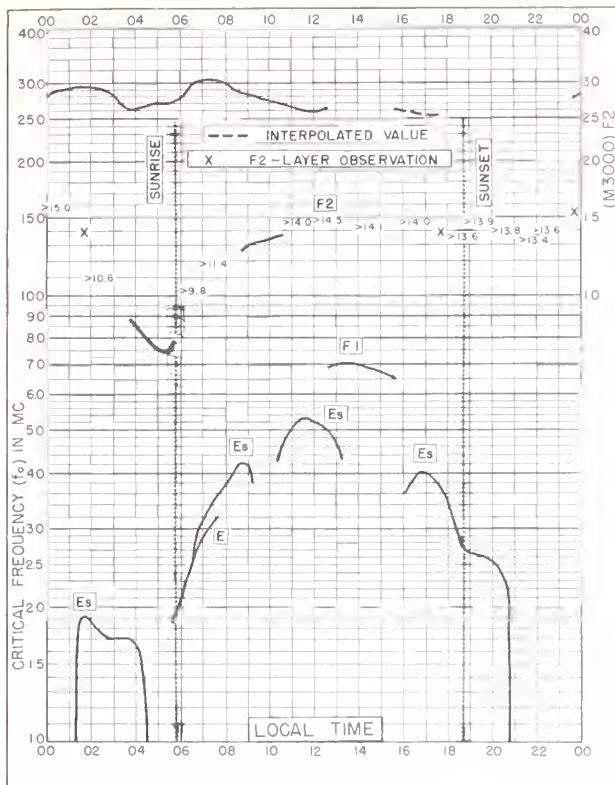


Fig. 121. TUCUMAN, ARGENTINA  
26°9'S, 65°4'W FEBRUARY 1958

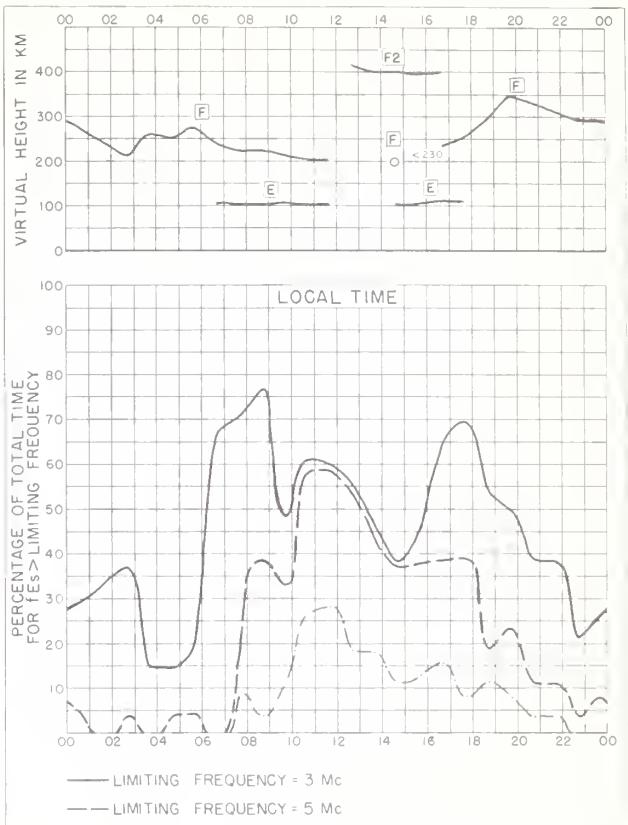


Fig. 122. TUCUMAN, ARGENTINA

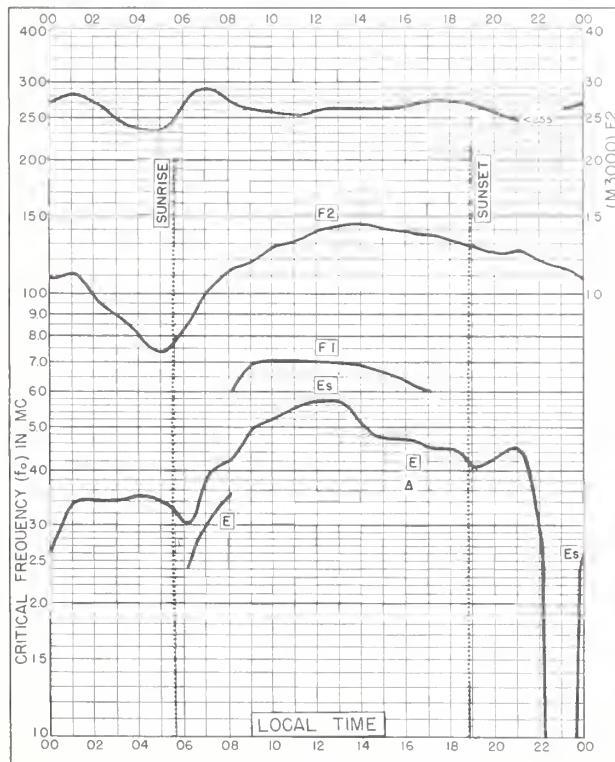


Fig. 123. BUENOS AIRES, ARGENTINA  
34°5'S, 58°5'W FEBRUARY 1958

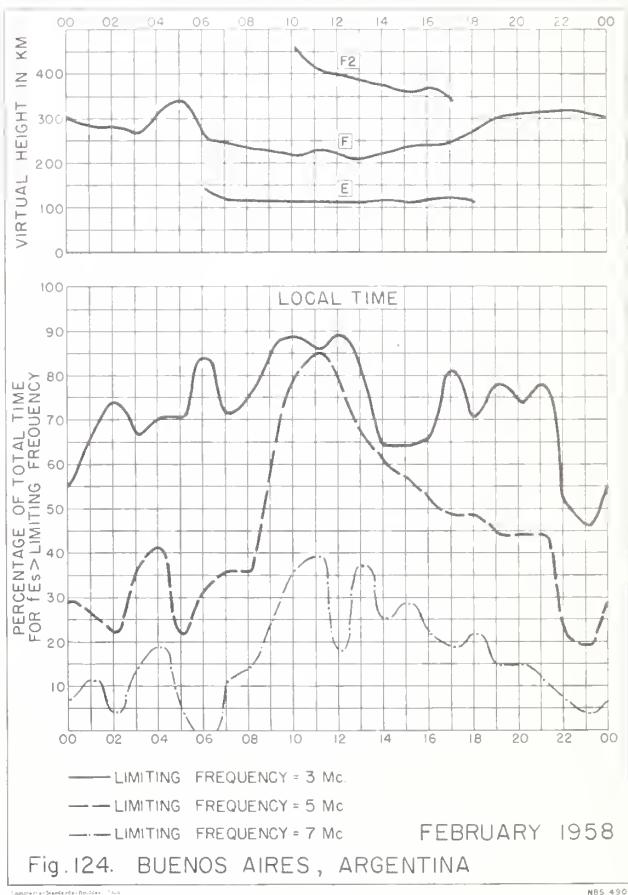


Fig. 124. BUENOS AIRES, ARGENTINA

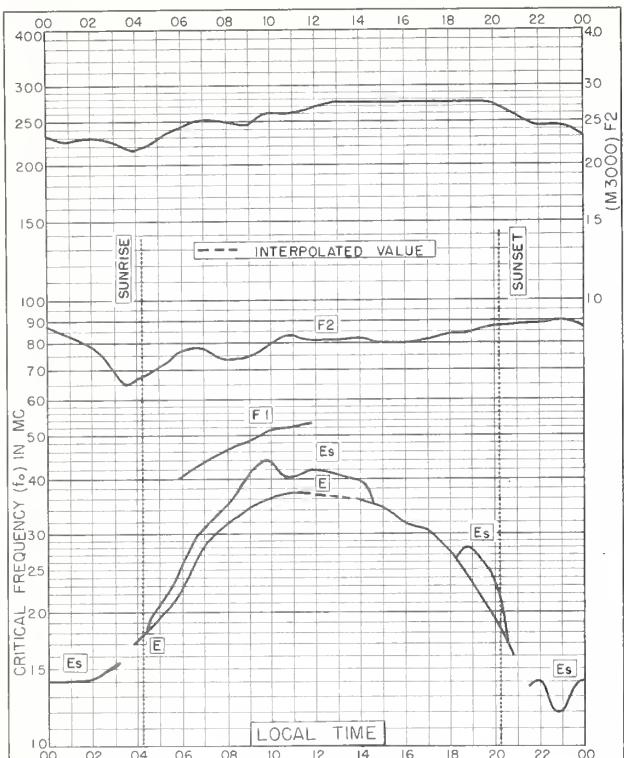


Fig. 125. PORT LOCKROY  
64.8°S, 63.5°W FEBRUARY 1958

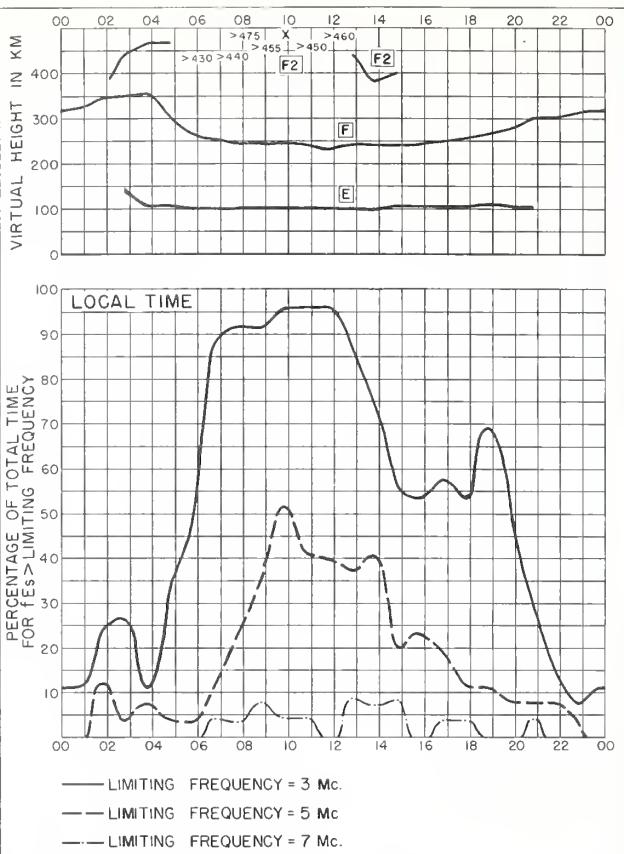


Fig. 126. PORT LOCKROY FEBRUARY 1958

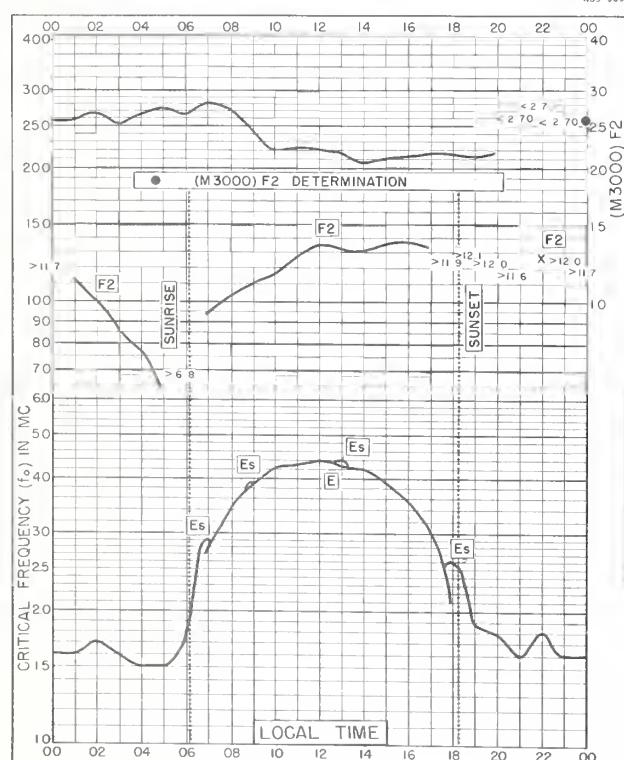


Fig. 127. LWIRO, BELGIAN CONGO  
2.3°S, 28.8°E JANUARY 1958

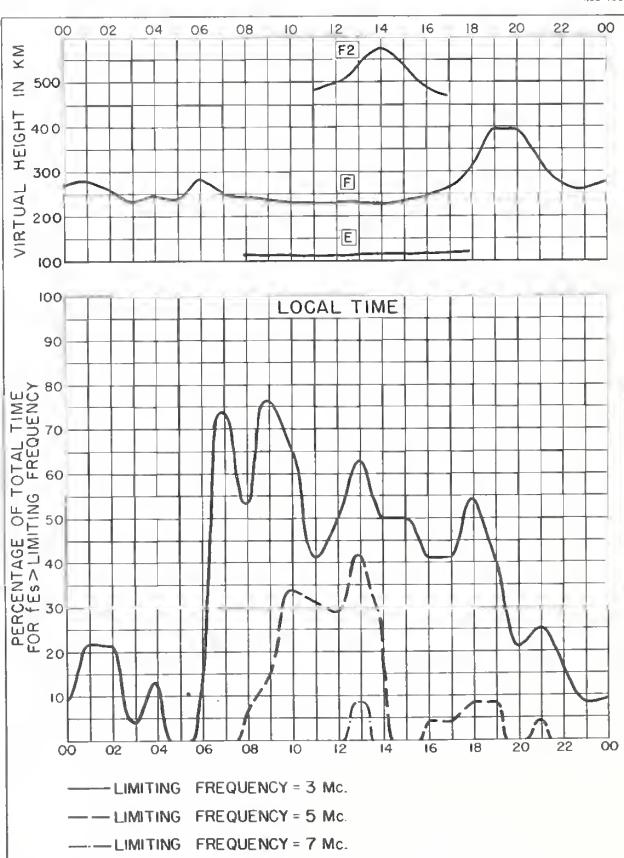


Fig. 128. LWIRO, BELGIAN CONGO JANUARY 1958

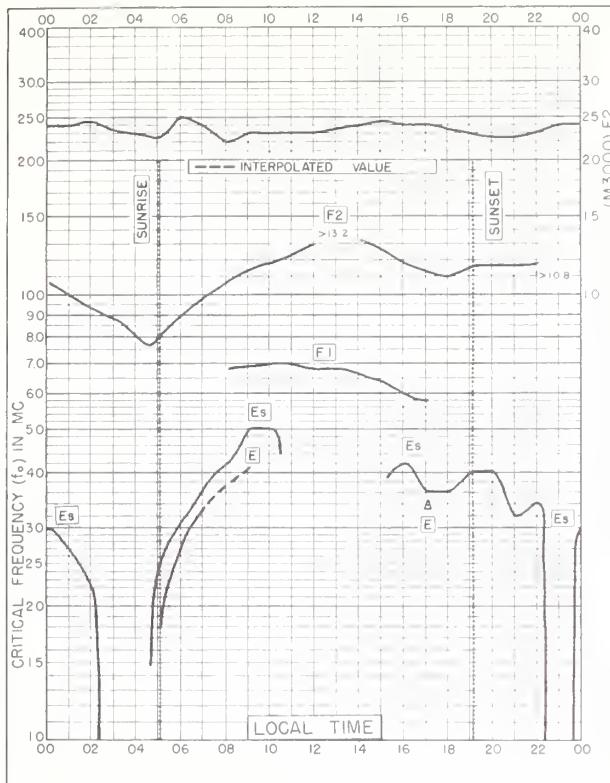
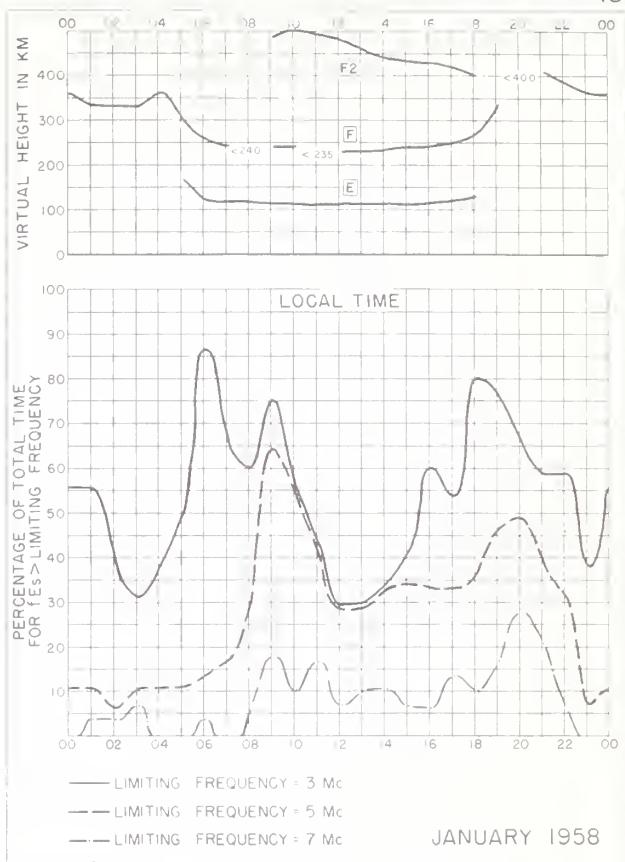


Fig I29 BUENOS AIRES, ARGENTINA  
34.5°S, 58.5°W JANUARY 1958



JANUARY 1958  
Fig I30. BUENOS AIRES, ARGENTINA

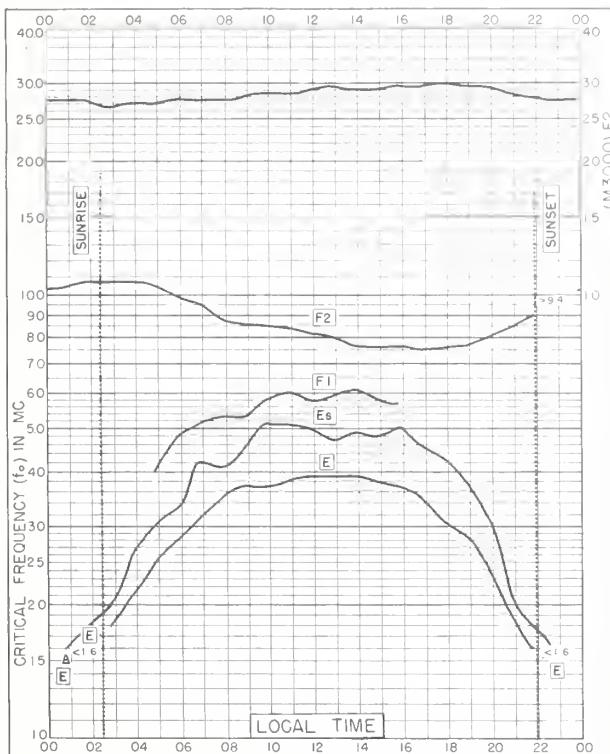
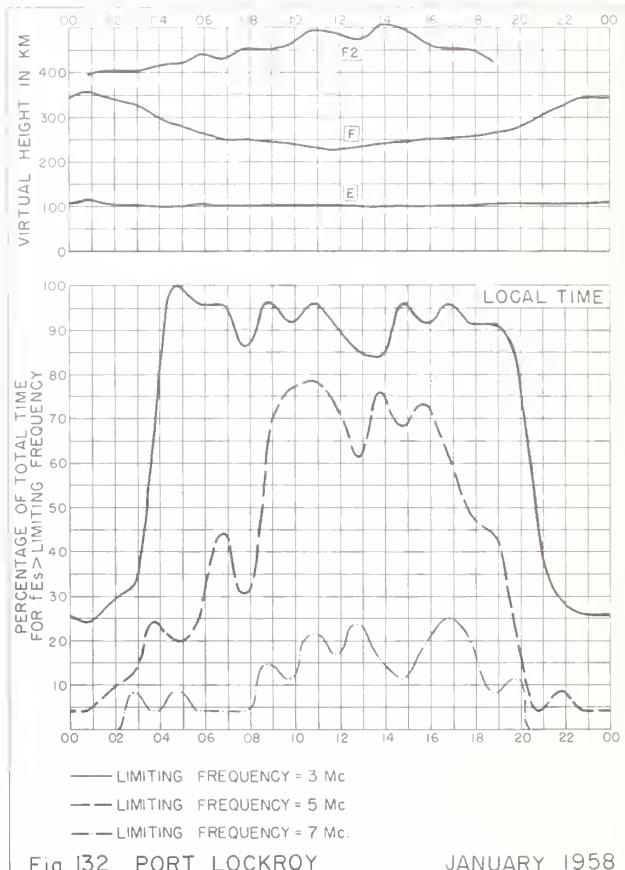


Fig I31. PORT LOCKROY  
64.8°S, 63.5°W JANUARY 1958



JANUARY 1958  
Fig I32. PORT LOCKROY

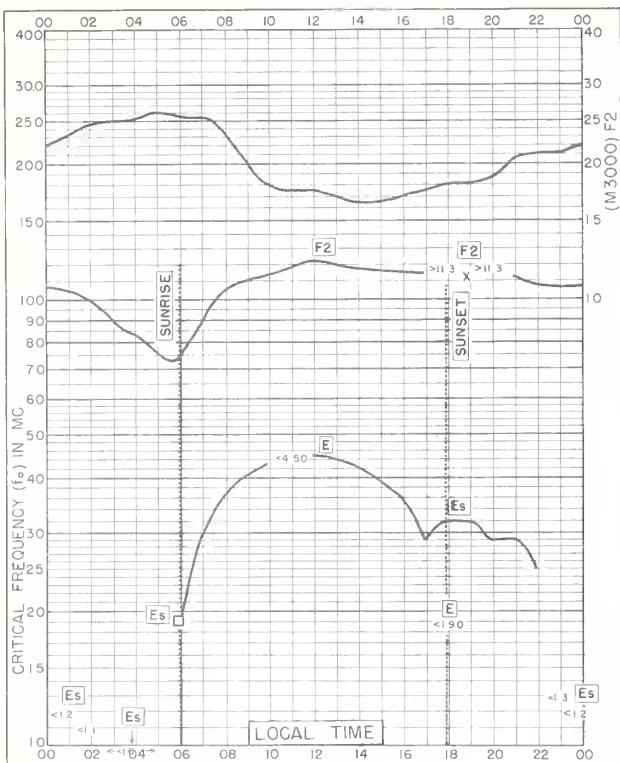
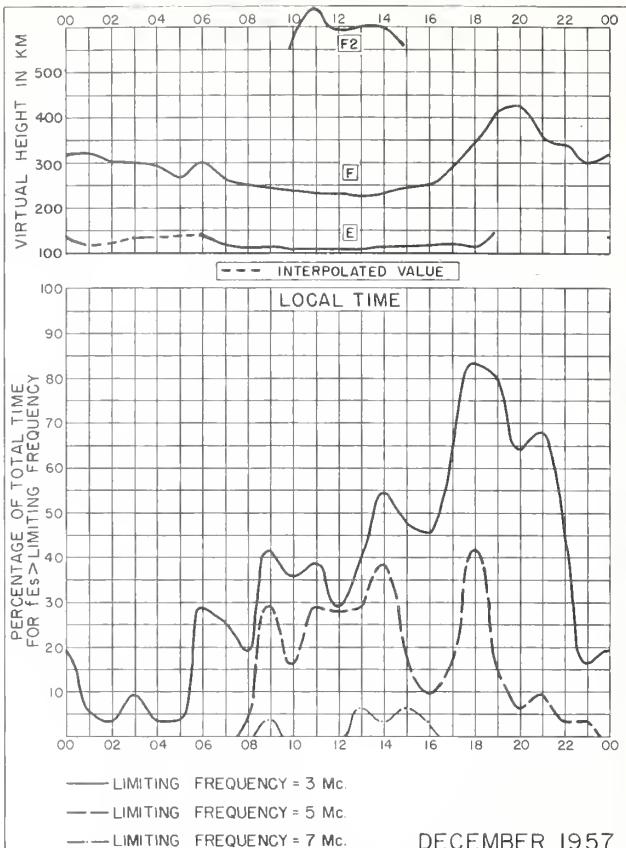


Fig. I33 SINGAPORE, BRITISH MALAYA  
1.3°N, 103.8°E DECEMBER 1957



DECEMBER 1957

Fig. I34. SINGAPORE, BRITISH MALAYA

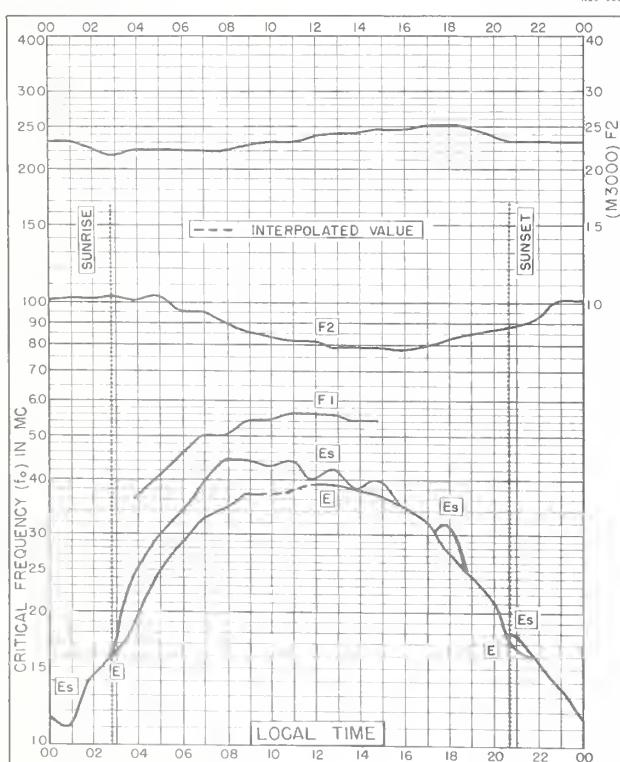


Fig. I35. PORT LOCKROY  
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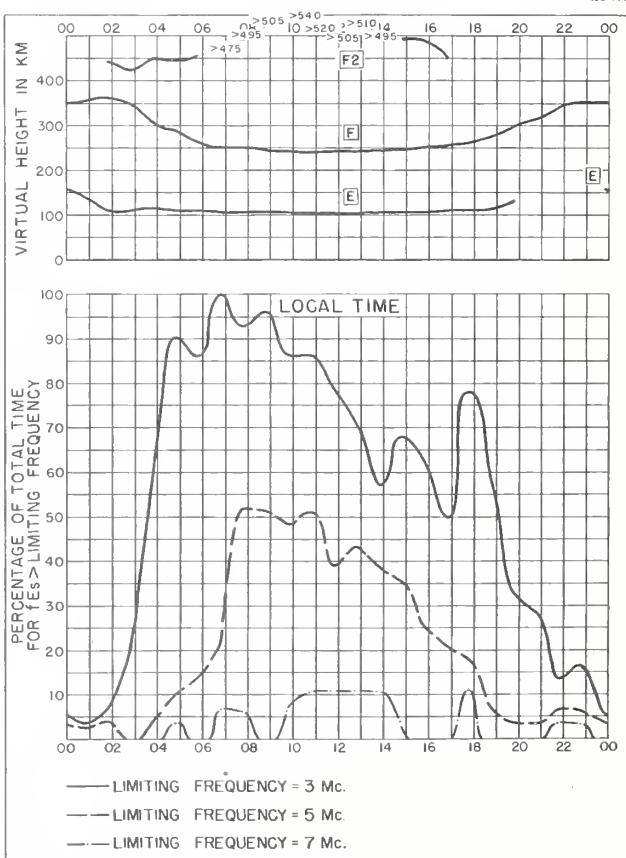


Fig. I36. PORT LOCKROY NOVEMBER 1957

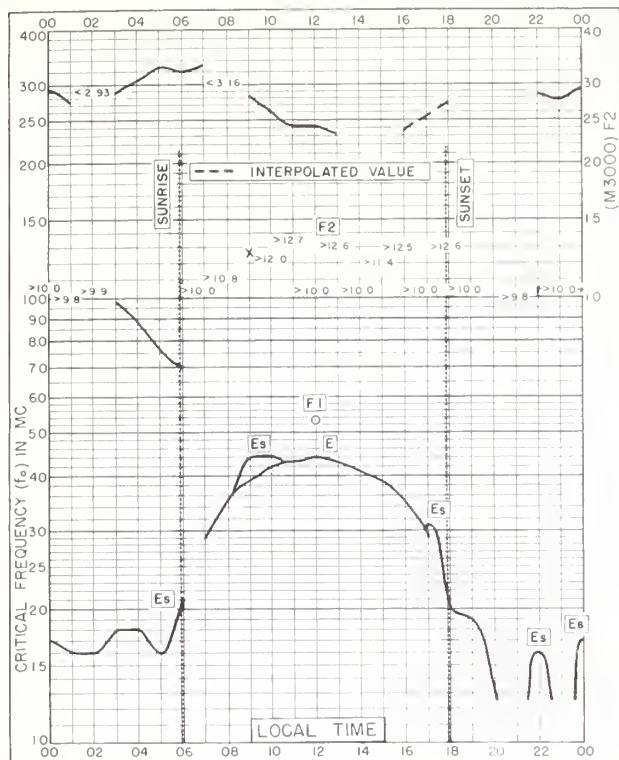


Fig. 137. LWIRO, BELGIAN CONGO  
2.3°S, 288°E SEPTEMBER 1957

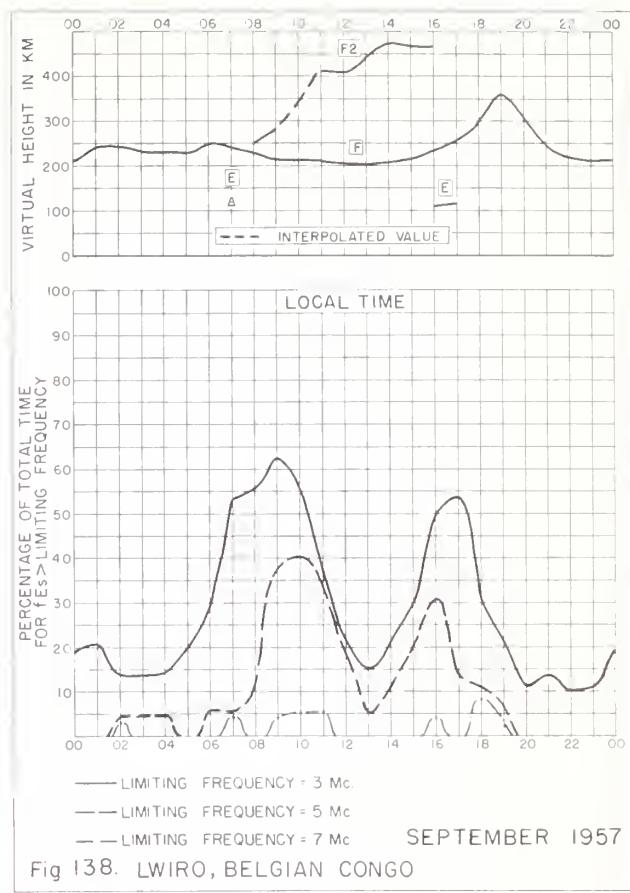


Fig. 138. LWIRO, BELGIAN CONGO SEPTEMBER 1957

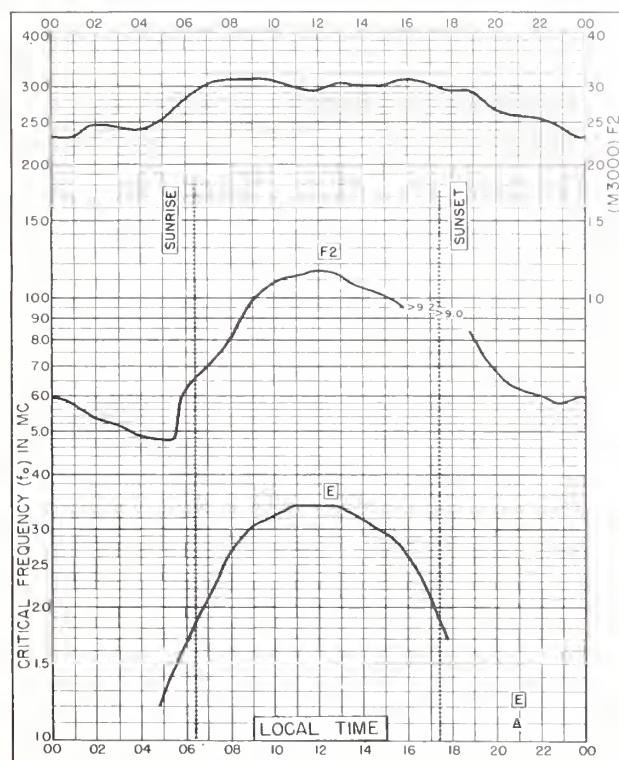


Fig. 139. PORT LOCKROY  
64.8°S, 63.5°W SEPTEMBER 1957

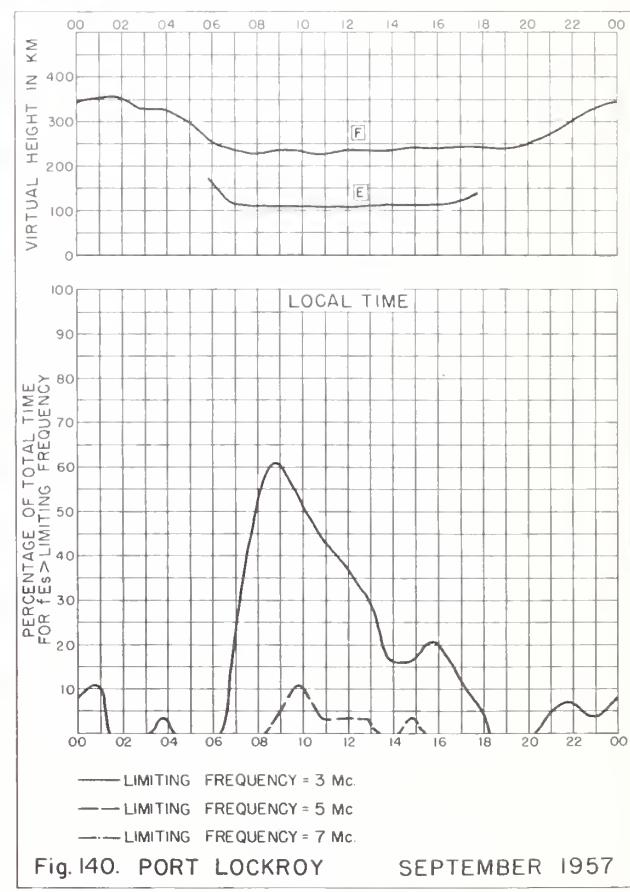


Fig. 140. PORT LOCKROY SEPTEMBER 1957

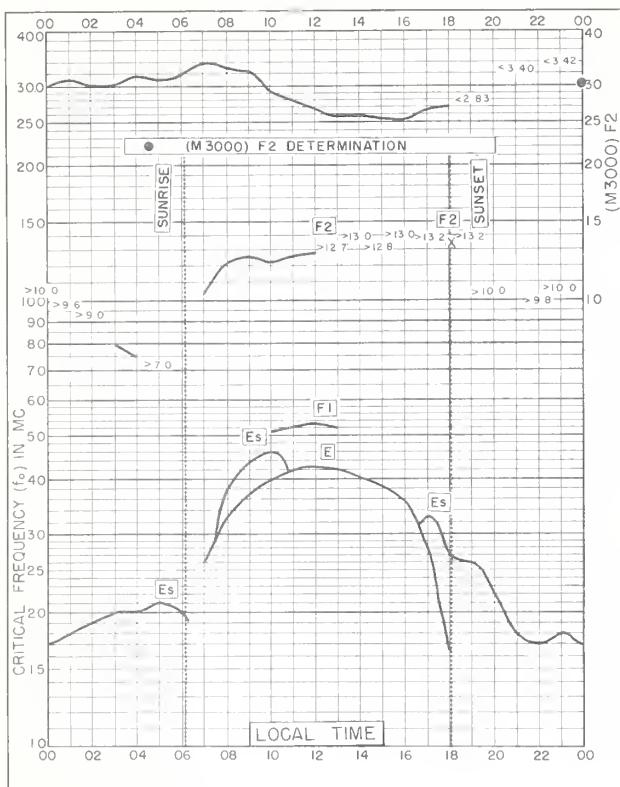


Fig. 141. LWIRO, BELGIAN CONGO  
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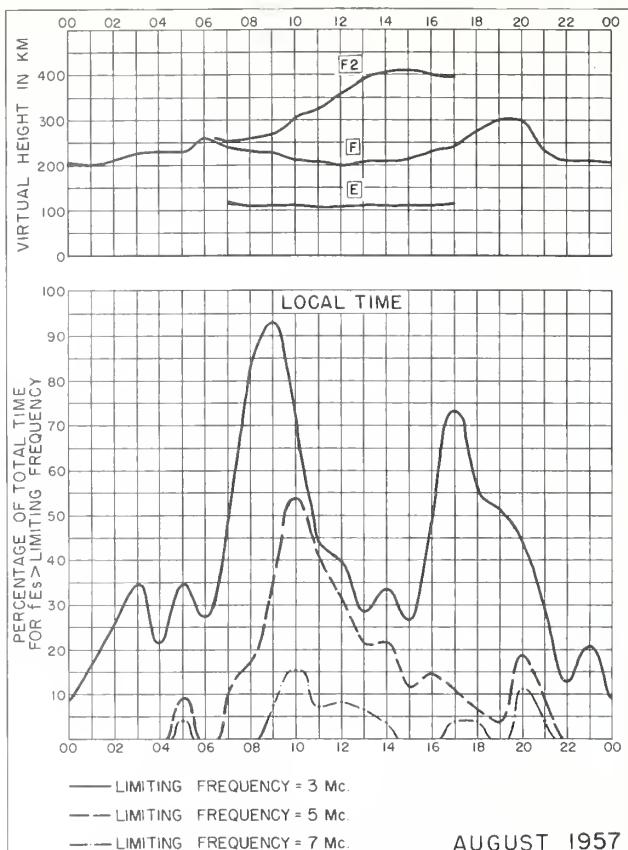


Fig. 142. LWIRO, BELGIAN CONGO

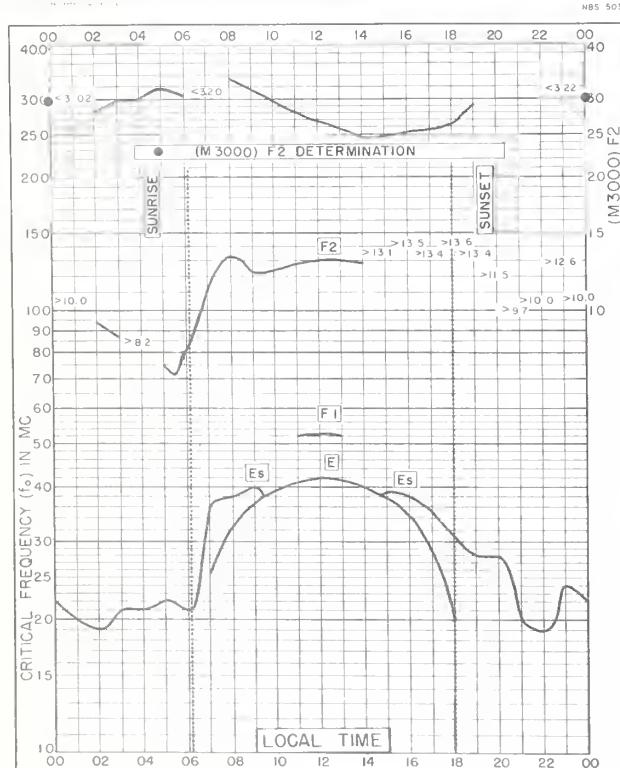


Fig. 143. LWIRO, BELGIAN CONGO  
2.3°S, 28.8°E JULY 1957

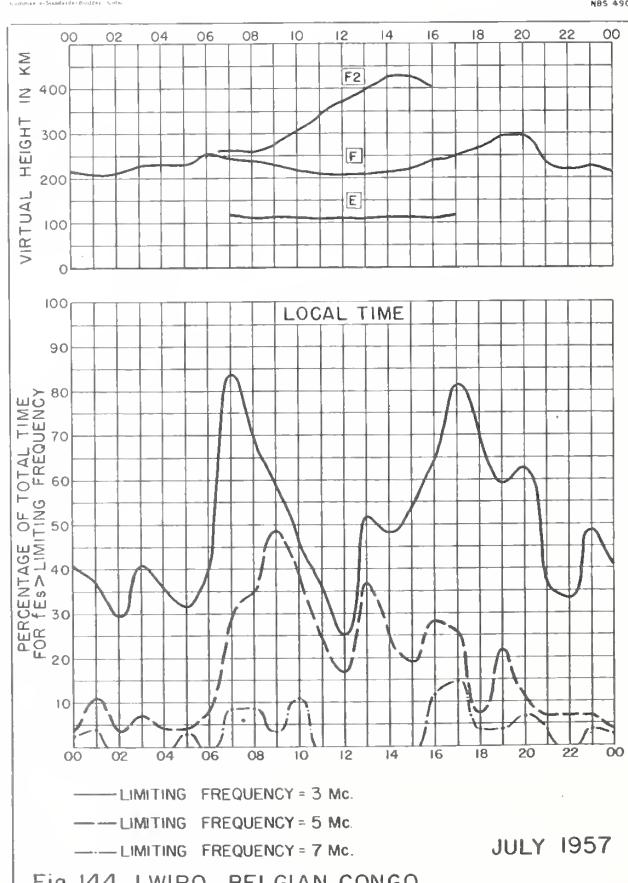


Fig. 144. LWIRO, BELGIAN CONGO

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